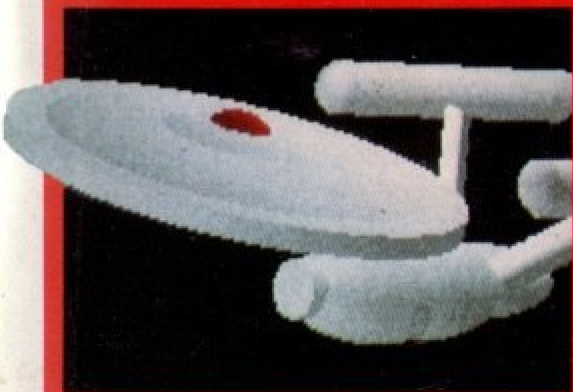
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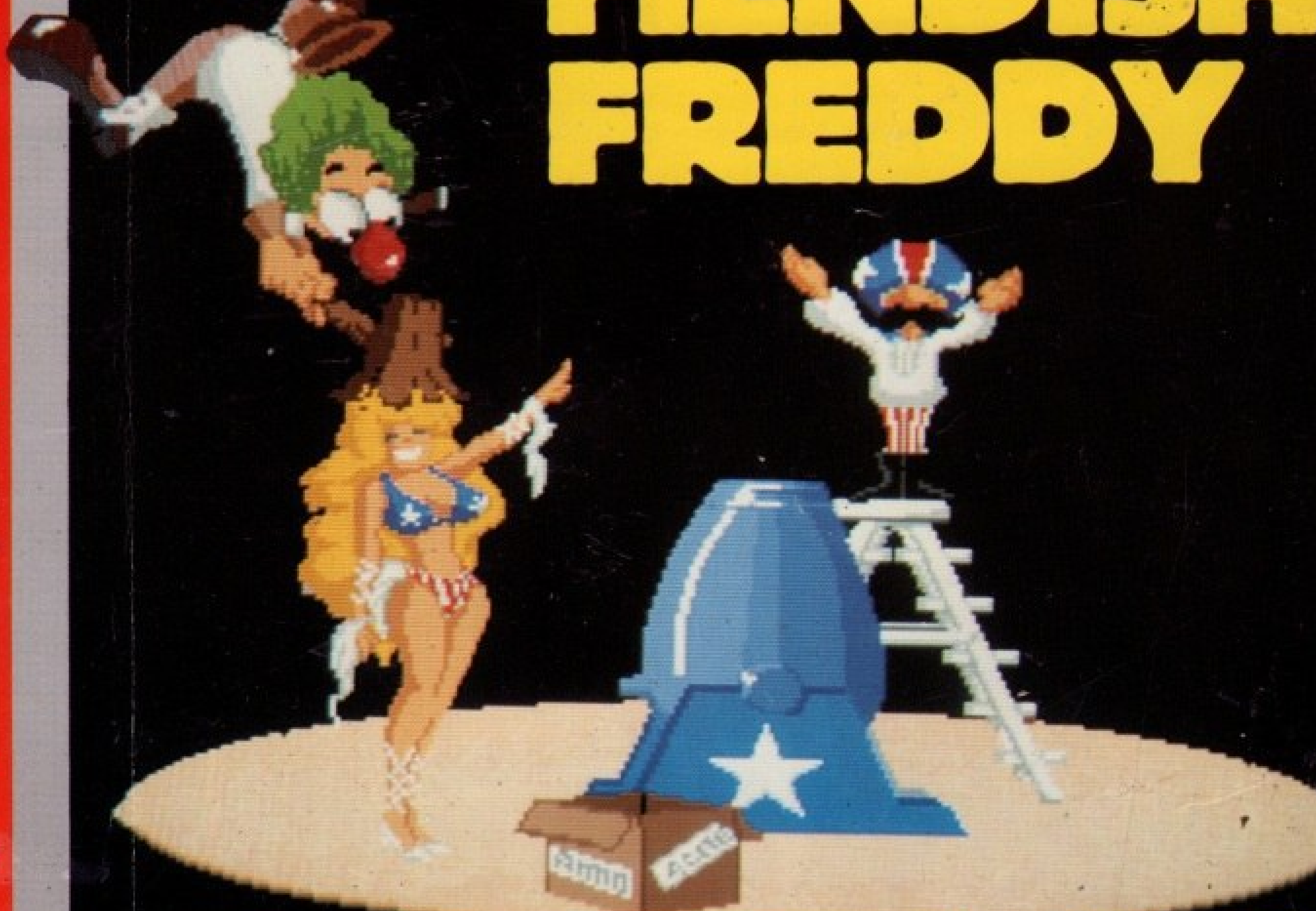


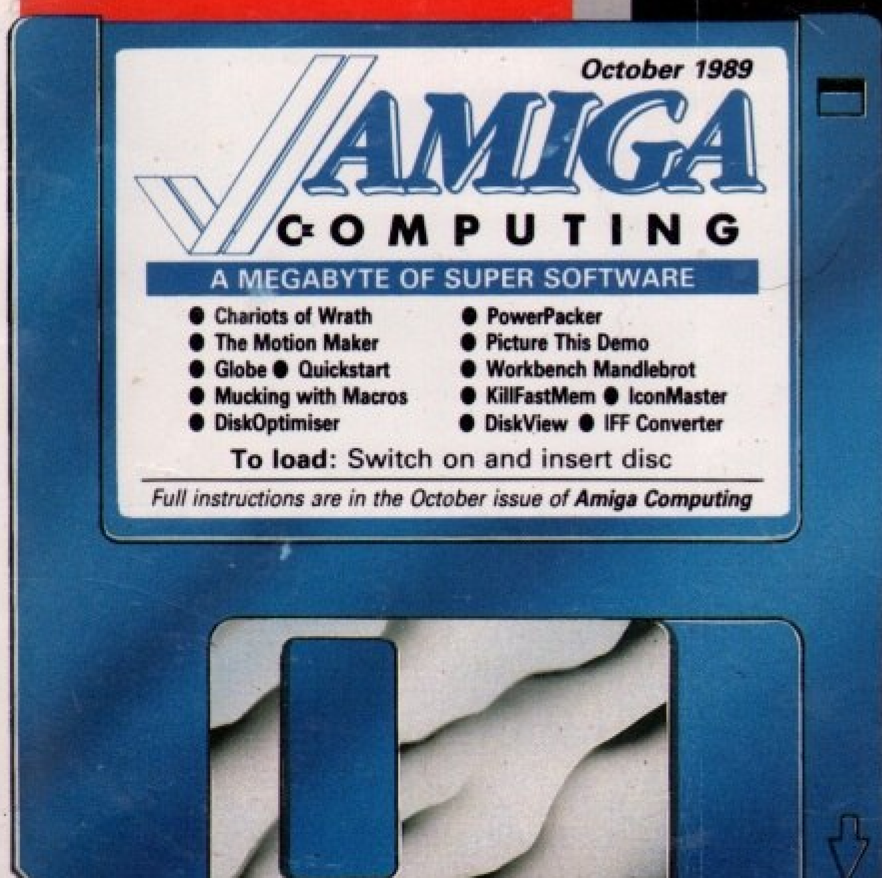
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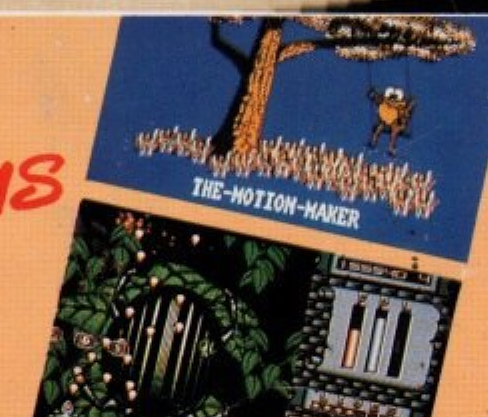
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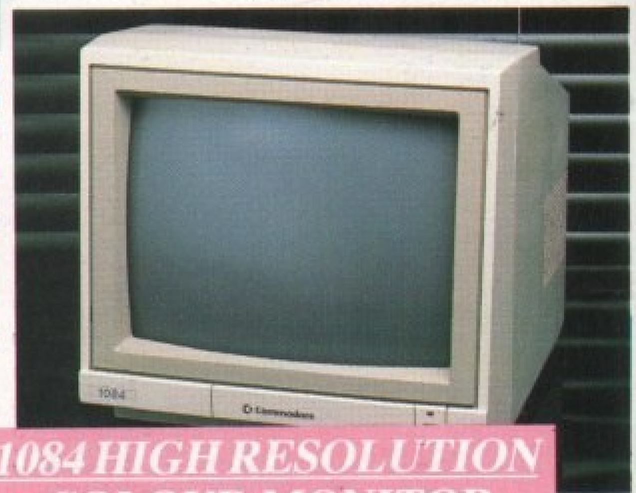
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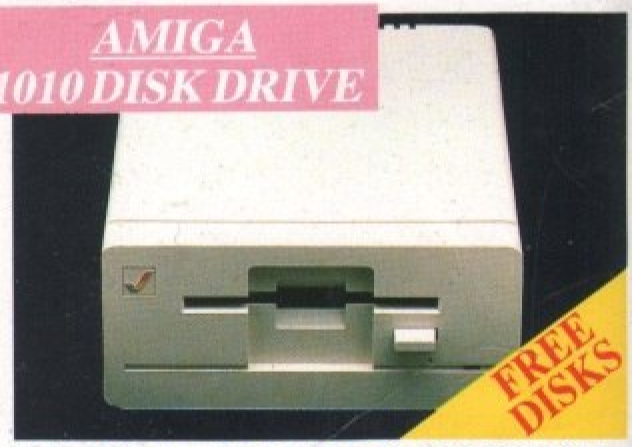
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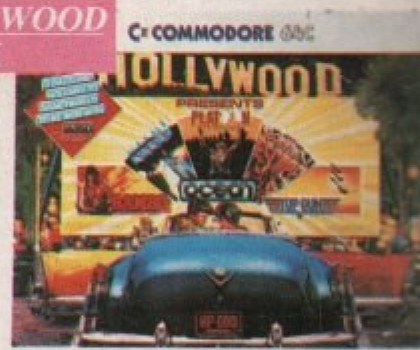
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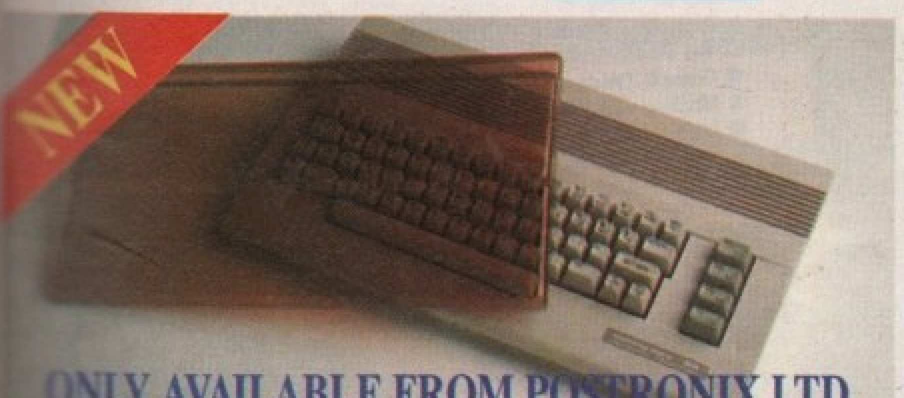
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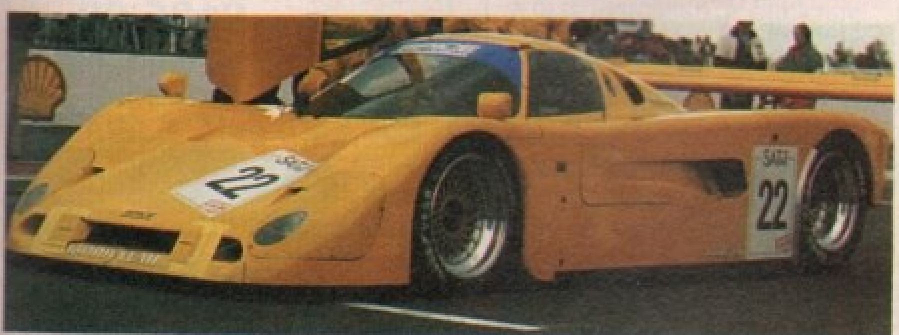
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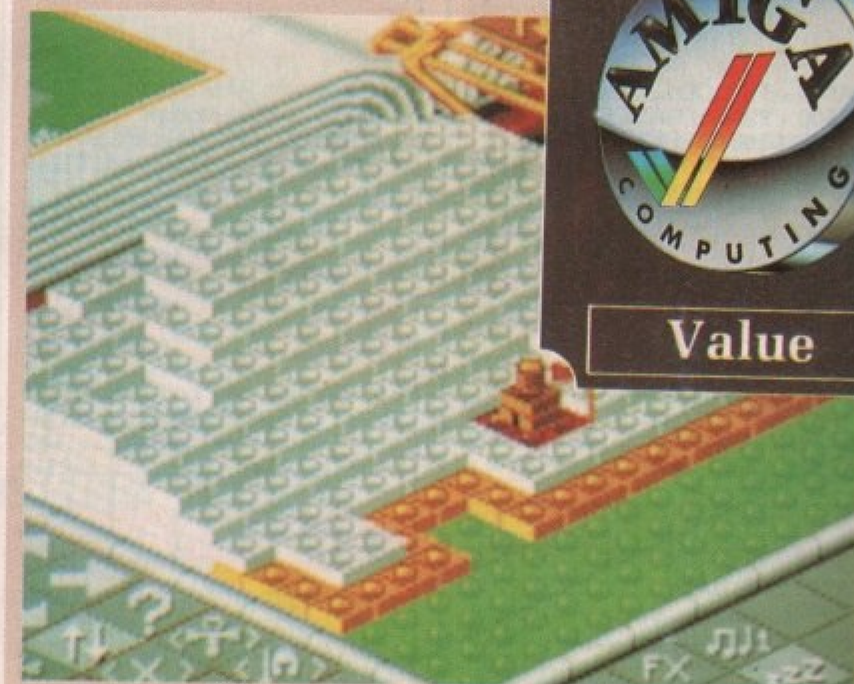




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Amiga 1000 owners have not been abandoned

PROGRESS often means that future developments pass existing customers by. Manufacturers don't like alienating existing customers, but progress and the need to compete often demands it.

Commodore has announced that it will produce cards for revision B Amiga which, whenever possible, will mimic future Amigas. Owners of A500s and A1000s will feel the pinch.

The first step in this direction is about to be taken. The enhanced chip set (ECS), will not work with the A1000. Although in time it may be fitted as standard to all A500s and A2000s as well as being available as an upgrade.

The A1000 Rejuvenator from G.B. Tibbes in Miami allows first generation Amiga owners to use ECS. The upgrade board can be installed where the second tier of the motherboard ram expansion is usually located. It is simple to fit and does not need you to cut or solder any tracks.

The board also includes a clock and A2000 video slot which will accept the flicker-fixer or a genlock.

Powerful response

POWER Computing (0234 273000) claims to have taken the peripheral market by storm with its latest product, Power Drive, a 3.5in external double-sided disc drive for the Amiga.

It is the result of a £250,000 tie-up with drive and printer manufacturer Epson and is aimed to compete with the current wave of Taiwanese imports.

The Power Drive is boxed in matching computer colours and the Amiga version costs £69.95.

Talking like a Mac

ONE of the most useful utilities for commercial Amiga users is Central Coast Software's Dos to Dos which allows the Amiga to read IBM PC format discs. Following the success of this, CCS has produced Mac to Dos which allows the Amiga to read the data from Mac discs.

Although it is not a full Mac emulator it is a useful way of transferring data in offices which use both Apple Macs and Amigas.

Because of the way in which a Mac drive works Mac to Dos uses special hardware and needs a Mac drive. For more details contact Amiga Centre Scotland on 031-557 4242.

Cutting the daisies

QUME (0635 523200) has cut the prices of its two leading daisywheel printers, the Sprint 11/55 and 11/90. The 11/55 has dropped from £1,366 to £850 and the 11/90, billed as the fastest daisywheel printer on the market at 90 cps, has been reduced from £1,674 to £1,593.

"Much has been said about the death of the daisywheel printer but we still sell plenty of these two models", said Qume's distribution sales manager Peter Smith. "There are a number of applications where users demand letter quality impact printers and the Sprint 11 range now offers a very cost-effective solution".

Database manager

ARNOR (0733 68909) has announced Profile, a database management program designed to complement Protext, its top-selling word processing package.

"A lot of existing Protext users were asking if there was a database that was especially compatible with Protext", said Arnor's Mark Tilley. "It was their calls which gave birth to this product".

Menu-driven Profile is a filing system designed for ease of use and speed. Its compatibility with Protext makes it particularly efficient for such tasks as mail merging, which can be achieved without lengthy question and answer sessions. Profile provides the various options speedily.

Arnor puts the price at around £80.

Answer is on the cards

RELATIONAL databases are often difficult things to understand. The Macintosh community has a solution to this – Hypercard. It uses graphics to define the relationship between the items of datum and is very simple to use.

UltraCard by Mike Lehman of Intuitive Technologies, the people who do MaxiPlan and Plan/IT, is the Amiga's answer to Hypercard. It has full IFF compatibility so that pictures and digitised sounds can be included in the database and selected with special effects such as wipes and fades.

This it does because it supports all screen resolutions except HAM and overscan.

Ultracard programs can either be written using the graphics interface or its own scripting language. Other programs can communicate with Ultracard by using the ARexx control language, and in turn Ultracard can use this to control other tasks.

It uses Hypertext so that actions can be triggered from either a word or phrase. Everything except scripting can be done from click of mouse.

No UK price has yet been set by the importer, HB Marketing (0895 444433) but the US price of $75 is probably a good guideline.

No crash course for flyers

LEARNING to fly remote controlled aircraft, particularly helicopters, is a difficult and expensive business.

Crash costs can make it prohibitive but an American simulation program now available in the UK will soon enlist the help of the Amiga to take the bumps out of model aerobatics.

RC Aerochopper has been developed by American firm Ambrosia Microcomputers, is manufactured by Futaba Corporation and is being imported into Britain by Bob Sidwick of Bristol (0272 550900).

Bundled with a modified radio control box, it is designed to simulate the experience of real flight. The choice of aircraft displayed on the screen includes planes, helicopters, ducted-fan jets and a glider.

RC Aerochopper closely simulates the experience of radio controlled flying by giving users the appropriate flight characteristics of each kind of aircraft plus such features as adjustable wind conditions and control response plus realistic sound effects.

Current versions of RC Aerochopper cost £199 including delivery. The

▶

◄ Amiga version will be available later in the year either direct from Bob Sidwick or from a limited number of retail outlets.

Commodore's profits fade

ANNOUNCING quarterly losses used to be a regular chore for Commodore's public relations people. Three years ago the company pulled itself out of the doldrums and started making profits.

Just as people were starting to lose track of how long it is since Commodore made a loss the company turns one in of $8.9 million (including a tax rebate) for the three months to June 30, 1989. According to Carden Welsh, the company treasurer, the last time Commodore reported a loss was March 1986.

Overall the company still had a good year, making $50.1 million. Irving Gould, Commodore's chairman – famed for his collection of ancient Japanese ivory – said that the fourth quarter losses were a result of the stronger US dollar and a softening of demand.

Since most home computers are sold at Christmas, it is not surprising that the period from April to June was not hugely successful. UK companies usually announce results every six months, splitting June to December and January to June so that both halves reflect the best period.

Some of the losses can be attributed to reinvestment. Commodore has recruited a lot of new technical and marketing staff in the US, big advertising budgets are planned for PC and Amiga trying to establish the Amiga as both a fun home machine, and an industrial workstation with Unix and high resolution graphics.

None of the losses are attributable to Commodore UK, which under the leadership of Steve Franklin has seen a dramatic rise in profits, winning a sizeable share of the PC market and routing the Atari in the battle for home users.

Commodore is still battling with the US taxman over what it owes, if anything, for previous years. This quarter's tax rebate comes from countries where Commodore is not in dispute and, unfortunately, cannot be seen as an indication that the problems are sorted out.

Starting up in France

THE Parisian Disc Company (331 45 53 1053) has produced a Starter Kit for Amiga 500 owners.

Labelled "a complete solution pack designed for first time computer owners who want a diversified use of their Amiga", it includes the KindWords 2.0 word processor, Fusion Paint and three games for a UK price of £69.95.

Up market video

LATEST launch by Applied Systems Developments (0724 280222) is MAXIgen which is being distributed by A.S.A.P.

Costing £862, MAXIgen is a professional broadcast quality genlock/coder providing twin RGB and composite video output channels for use with the Amiga.

The unit comes with front panel controls and rear panel connections in a 19in rack unit. Desktop use is also possible.

PASE (Professional Animation Sequence Editor) is another new product available through ASAP. A full function animation creation and editing program for Amigas, it costs £75.

50 words for a penny

THE first thesaurus for the Amiga, K-Roget, has been launched by Kuma Computers (07357 4335). It is based on the Longmans Pocket Rogets Thesaurus and contains more than 150,000 words and phrases.

Keyboard, function key and mouse control options are built in to give the user a choice of operation. In addition to the standard thesaurus features, a phonetic spell checker is incorporated which traps words typed in as they sound rather than as they should be spelt and offers possible words.

The Amiga version of K-Roget is being launched at a special price of £29.95.

Type it in with Mavis

MAVIS Beacon can now teach typing to UK students with an Amiga. After some delivery problems, the well-known American typing program Mavis Beacon Teaches Typing is being distributed in the UK by Mindscape International (044 486 545).

Published by The Software Toolworks, it uses artificial intelligence techniques to provide what is claimed to be the most comprehensive typing tutor available.

The course is structured to match individual student profiles with up to 21 difference progress charts to check skill development.



Tutor Mavis

The results of these progress charts are analysed using the built-in artificial intelligence system to produce the next set of exercises.

Guide hands show students the correct finger positions at all times. Speed and accuracy meters are displayed on screen during exercises with a summary at the end of each set of work.

The Amiga version costs £29.99.

Big drive in schools

PLANS to make the Amiga a vital tool for thousands of youngsters with special education needs will take a giant step forward this month. Commodore's national sales manager for education Peter Talbot has told *Amiga Computing* that a concept keyboard for the Amiga is on target for the start of the new academic year.

This will provide the principal hardware opening for a flood of special education programs to be converted to the Amiga and will be a large boost to Commodore's aspirations in this market.

The latest development is the result of lengthy discussions between Commodore and Martin Littler, special needs coordinator of the North West SEMERC (Special Education Micro Electronic Resource Centre) which works on behalf of the National Council for Educational Technology.

Martin is keen to see his centre's impressive list of educational programs converted to the Amiga and Peter Talbot has echoed his enthusiasm.

Use of Commodore's BBC emulator, other minor hardware problems and prin-
cipally the need for a concept keyboard have formed the basis of the discussions but Peter Talbot says Commo- ►

dore's help will not cease there.

"Special education is an area where we feel we have got a lot to offer", he said. "We will be having on-going discussions with Martin Littler about how Commodore can help in a number of areas. What is certain is that we will be playing an increasingly important part in this field.

"We expect to have the concept keyboard for the Amiga working for the start of the next academic year. We have got it working with the emulator at the moment and we are delighted to co-operate with Martin and his staff.

With its power, the possibility of speech synthesis, sound creation capabilities and its general ease of use, we feel the Amiga has a lot to offer to special needs education".

Equally enthusiastic is Martin Littler whose resource centre is one of only two such bodies now left in the country.

"Once the concept keyboard is available for the Amiga, we would like to see our whole range of software converted for use on that machine", he said.

"With the new programs we are about to bring out, we will have 43 packages specially designed for use in schools and if there is someone out there who would like to help in converting them to that format we would be happy to pay them".

The North West SEMERC's Blue File list of software has enjoyed singular success. Within 12 weeks of the first catalogue being published last April sales had reached £11,500, with each package selling at £1.75.

"This has surprised us because we did not set out to do this for financial success, but as a support service for the NCET", said Martin.

Also available from the resource centre is the Special Needs Top Thirty, a collection of software compiled on the advice of special needs coordinators in 60 English and Welsh education authorities and five Northern Ireland boards.

Many of these programs have the advantage that they are frameworks within which the teacher provides the content to meet the needs and abilities of particular children. They have been developed by both educationalists and software houses.

The North West SEMERC is based at Fitton Hill, Rosary Road, Oldham, OL8 2QE. Tel: 061-627 4469.

A touch of the Star Wars for adverts

COMMODORE has had a history of problems with television advertisements. In the US the company produced an advertisement using Amigas. They were screened on MTV which uses high resolution commercial workstations for most advertisements. As a result the Amiga didn't look too hot.

Over here Commodore produced the splendid teddy bear advertisement using both the Amiga and Iris workstations at Digital Pictures.

Atari complained to the Advertising Standards Authority (ASA) that the commercial gave the impression that the whole ad was produced using the Amiga.

This is of course complete twaddle, you might as well say that the ad gave the impression that televisions have little teddies inside, but there you go.

Atari complained (not that it was scared or anything) and the ASA, lacking the necessary specialist knowledge, fell in line. This year we may see the ad with a line which explains that the graphics were not produced on an Amiga. Commodore US has pulled off something of a coup, in getting George "Star Wars" Lucas to produce a series of four commercials.

Rumour has it that his company, Lucasfilm, has turned down similar job offers in the past, but George has an Amiga and likes it so much that he agreed to the commission.

The commercials have been scheduled for prime time television to promote the Amiga to home users across America.

It's showtime again

GLOBE-trotting Amigans will have a busy time keeping up with all the computer shows in November. The first European AmiExpo is to be held in Cologne, Germany on November 10, 11 and 12. It will feature a number of major American and German exhibitors. For more details contact Joe Lowery at AmiEXPO, the New York-based organisers on 0101 212 867 4663.

Closer to home there are two shows lined up which will interest Amiga users. The first is a collaboration between Commodore and Database Exhibitions while the second is a Database exhibition sponsored by Computer Shopper magazine.

The Commodore Christmas Computer Show, to be held at the Hammersmith Novotel from November 17 to 19 will be an up-market affair. There will be no time to relax, because the following week (November 24 to 26) sees the Computer Shopper Show '89.

This will be a big event, encompassing Acorn, Atari and Amstrad machines as well as third party Amiga suppliers, so you will be able to go along and sneer at the machines which don't have a blitter. It should also be a great place to pick up some bargains.

Programmers do it in Paris

CONTINUING its policy of supporting Amiga developers worldwide Commodore plans to run a course for programmers in Paris. Previous developers conferences in Washington, California, Nottingham and Frankfurt have been well received and introduced many programmers to the finer points of programming the machine we know and love. The conference will have lectures in English and is scheduled for next February. For more details contact Commodore-Amiga Technical Support on 0628 770088.

MicroLink cuts costs

MICROLINK telex users will have some good news when the electronic mail service quits Telecom Gold in favour of the Istel network on October 1.

Charges will be reduced by 20 per cent for the many businesses still using telex rather than fax. This will be particularly beneficial to people using international telex to contact countries where fax has not yet become established.

"For regular telex users the price cut could more than offset their MicroLink subscription", said the head of the service, Derek Meakin. "MicroLink will continue to offer all its existing incoming and outgoing telex facilities including personal telex numbers for incoming messages.

"On top of this, the service will be one fifth cheaper, making it far and away the most economical method of using telex".

AMG 4

The Joker lands late

BATMAN'S filofax is on the blink. The film wasn't due to arrive until Christmas, but Warner Brothers decided to bring the UK release forward to the summer.

While batfans rejoiced countrywide, the programmers at Ocean groaned. Beating the Dark Knight to the screens would be impossible, but they could give it a try.

Even with the game set for release a month after the film, things are tight. So the programmers in the basement at Ocean are hammering away at their keyboards.

The game is split up into a number of scenes which follow the plot. Giving too much away would ruin the film. The barest essentials, then:

There are a couple of levels in which you must take on armed baddies, whose gunshots ricochet off your body armour.

You use your Batrope to leap around a chemical works at the beginning, and a church at the end – a ladders and platformy scene which has been beautifully drawn.

You must find the girl and rescue her from the Joker.

To get from place to place you partake in a Crazy Cars style driving scene, piloting the awesome Batmobile towards the spooky Gotham City skyline.

Turning corners needs some deft action with the Batrope.

The game, and particularly the fine graphics, conjure up the underworld feel of the film.

The programmers worked from the script but couldn't get a full taste of the atmosphere without seeing the real thing.

Warner Brothers refused an early screening, so Ocean sent two of the programmers to New York, where the flick had opened.

They saw it twice over the weekend, hopped on a plane and got back to their development system.



I don't know why he is smiling. Ocean has a deadline to meet

Give us a view

PICTIONARY is a game played in a similar way to charades, only instead of acting out a word or title you and your team mates must try to guess the various words by sketching clues to each other.

The game features an innovative (it says here) graphics package, which includes solid broken and dotted lines of various thicknesses, rectangles, circles, ellipses and a number of fill patterns.

Out on the Domark label, price £24.99.



Pictionary in practice

TWO new programs from Bullfrog – the authors of Populous – are on their way.

The first is Warmonger, a 3D vector graphics game with many of the strategy elements for which Bullfrog is so rightly famous.

The name of the game is likely to change, since the program is not scheduled for release until well into 1990.

Further off than that is Populous 2, which adds loads of features to the best selling Amiga game ever, including more strategy and the ability to zoom in on the landscape.

All in a good cause

WEARING a lighter shade of green than its usual khaki, MicroStyle – a MicroProse label – has teamed up with Greenpeace to produce Rainbow Warrior, a game which is environmentally aware.

Unfortunately the game isn't up to MicroProse's recent excellent form, but it serves Greenpeace's motives admirably.

As a protest organisation, Greenpeace's function is to raise the level of awareness, and the game tackles seven aspects of the work the organisation does – from saving whales and seal cubs to protesting against nuclear power and acid rain.

The actions are written up in an excellent manual which explains the reasons behind and details of many of the protests Greenpeace has taken part in. It is light

All the latest news on the games software scene

Bombs away

FRENCH air traffic controllers may have a hard time keeping tabs on what is filling their airspace, but that is a doddle compared with what is lined up on the runways of various software houses.

Digital Integration is leading the way but it has bandits at 12 o'clock.

Activision and Vektor Grafix are first to follow into the skies with Bomber. This allows you to fly missions over the US Mid West in a choice of aircraft, the MiG 27, F-111, two Tornados, the Saab Viggen and an F-15. You can also choose what you wish to fly against.

By incorporating a huge number of polygons Vektor has produced realistic planes. There is a trade-off between speed and performance so you can elect to play with fewer polygons and have faster action.

But there are more foes in the sky. The game which sets rival software houses quaking in their bootblocks is Hawk from Electronic Arts, also known as F-117a Aggressor.

The program has been under development at Argonaut Software for 18 months, *Amiga Computing* printed the very first screenshot in June 1988.

With as many as six people working on it at any one time, the result will represent about 10 years work for a single programmer.



F-117a – an early screenshot. The game now features an amazing control panel by Herman



ACE – a casulty in the dogfight



Bomber uses highly detailed planes

And it will be worthwhile. Using special Virus-style landscaping techniques and optimal mathematics, Argonaut claims it has the best basis for a flight simulator.

Programmers with specialist interests in aerodynamics, modern fighter aircraft and weapons have been recruited. The result should be aircraft which fly accurately and give a realistic performance, although when I got my hands on it for a sneak preview the final figures were being tweaked and the planes were still very twitchy.

Ocean also has an entry for the air race. F-29 Retaliator is a futuristic flight sim which is still some way off.

Looking a bit like Falcon, with stippled mountains and detailed cockpit graphics, it could be the surprise winner in the battle for air supremacy.

The plethora of aircraft games could yield a casualty. Ace from Artronic uses some advanced maths techniques, but in the face of some stiff opposition it may have its wings clipped until later next year.

REVIEWED THIS MONTH

- 100% Xenon 2
- 92% The Promised Lands
- 83% NightDawn
- 82% Leonardo
- 78% Journey
- 77% Fiendish Freddy
- 76% Sleeping Gods
- 73% Barbarian II
- 71% Chariots of Wrath
- 69% Astaroth
- 49% Gemini Wing
- 49% Indiana Jones
- 49% New Zealand Story
- 46% Skate of the Art
- 45% Castle Warrior
- 42% The Champ

MAX HACKS

- **Carrier Command**
- **Eliminator**
- **Helter Skelter**
- **Interceptor**
- **Leonardo**
- **Thunderbirds**

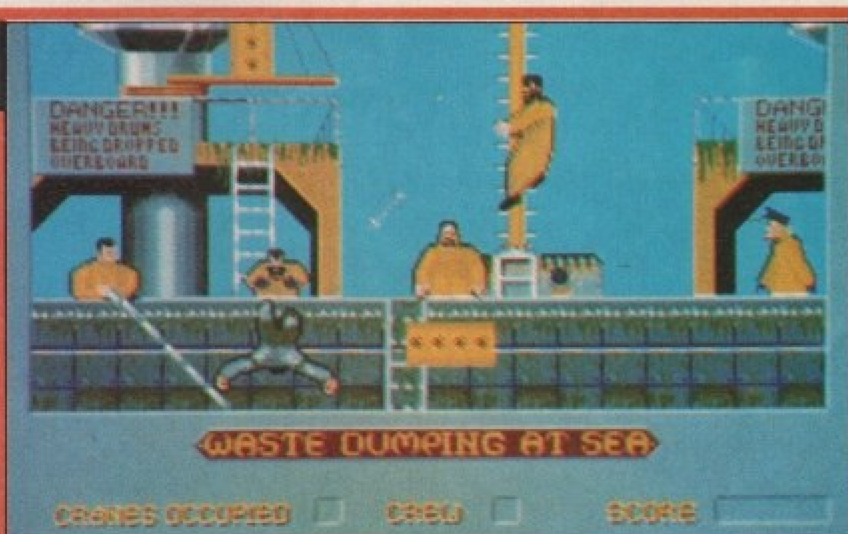
Gallup Chart

		Last Month
1	Populous Electronic Arts £24.95	1
2	Forgotten Worlds US Gold £19.99	3
3	Kick Off Anco £19.99	4
4	Falcon Mission 1 Mirrorsoft £19.99	NE
5	Silkworm Virgin/Sales Curve £19.99	5
6	Dragon Ninja Ocean £24.99	10
7	New Zealand Story Ocean £24.99	NE
8	Lords of the Rising Sun Cinemaware £29.99	2
9	Falcon Mirrorsoft £29.99	RE
10	Lombard RAC Rally Mandarin £24.99	RE

and well written, with excerpts from The Greenpeace Story.

It blends the actions with instructions for playing the game and gives you a chance to get involved.

There are plenty of computer games in which you save alien worlds, and even whole universes – Micro-Style has produced the first one in which you save the planet called Earth.



The crew are far from friendly

Here we go, here we go, here we go

FOLLOWING hot on the shinpads of Anco's news that it is to produce another football game this season, there as been a rush of announcements and signings.

Krisalis has teamed up with Man Utd to produce a computer simulation with a club management section and arcade style action.

So if you fancy yourself as manager Alex Ferguson, or want to take on the mantle of Mark Hughes, you'll be able to take your choice.

The really ambitious can try both as a player-manager.

The Amiga version will be the first to be released and is the only rendition of the game which vertically scrolls its five-screen-wide pitch thanks to the built-in hardware. The playing area is 600 pixels deep and gives an isometric view.

The ref and linesmen will be on-screen the whole time watching for fouls, offside and sending off offending players. The trainer sits on the bench and pretends not to shout instructions.

Krysalis claims that Man Utd is the most famous football team in the world. Detailed research (I spoke to two people) reveals that this accolade should go to Liverpool, a team which has had the license for a game tie-in bounce around several software houses.

It now seems to have ended up in Ocean's penalty box. No details or release dates are available.

The fledgling Empire label has taken a different approach to footie licensing. Instead of backing a team, it is marking a man. That man is Tottenham Hotspur superstar Paul Gascoigne.

Gazza's Soccer Simulator will use digitised images to "set new standards in sports simulations".

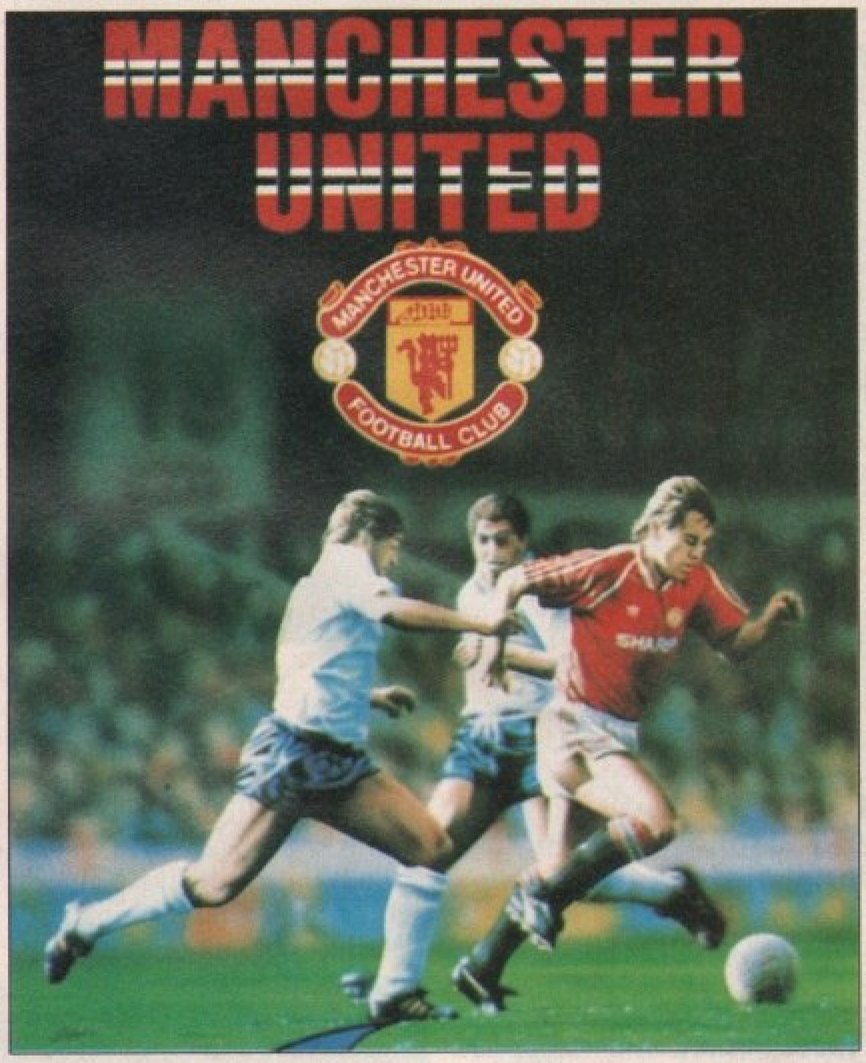
One software house which is so confident of its footballing prowess that it has not signed anyone is Impressions, or to be more accurate Impressions' new label, Plato.

What an ancient Greek has to do with our national game, I don't know. But Super-League Soccer is the first Plato release.

In a rare moment of marketing honesty the company admitted that this is "yet another football management game". But it claims it is nothing like any of the games currently available because it puts you in charge of a top-rate team, rather than making you struggle to the top.

The game has a good pedigree, coming in part from the team which wrote Kenny Dalglish Soccer Manager.

With Ocean, Anco, Krisalis and Plato all ready for the opening whistle this should prove to be an interesting season, regardless of whether or not your screen is tuned in to your A500 or BBC1.



Unclean code

BETTING on films is often a risky business. Not only do you have to produce a game to meet someone else's deadlines, but you must capture the feel every bit as accurately as the celluloid.

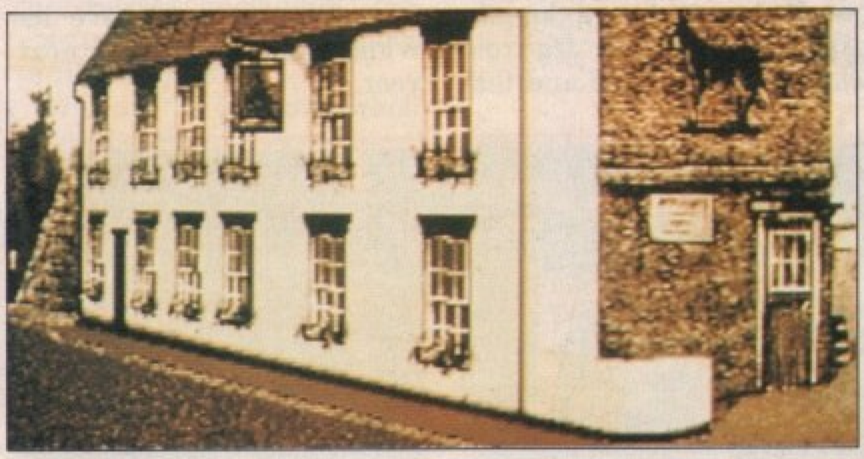
The Untouchables was released about a year ago and Ocean has the rights to produce a game based on gangsters and liquor during the prohibition.

Ocean commissioned a game from a conversion company but the end result wasn't good enough. So in a very brave and laudable move it was cancelled and the game re-written.

The move paid off with a great, playable game in which you play several of the stars from the film, each with different abilities.

Look for it soon.

Is there anybody there?

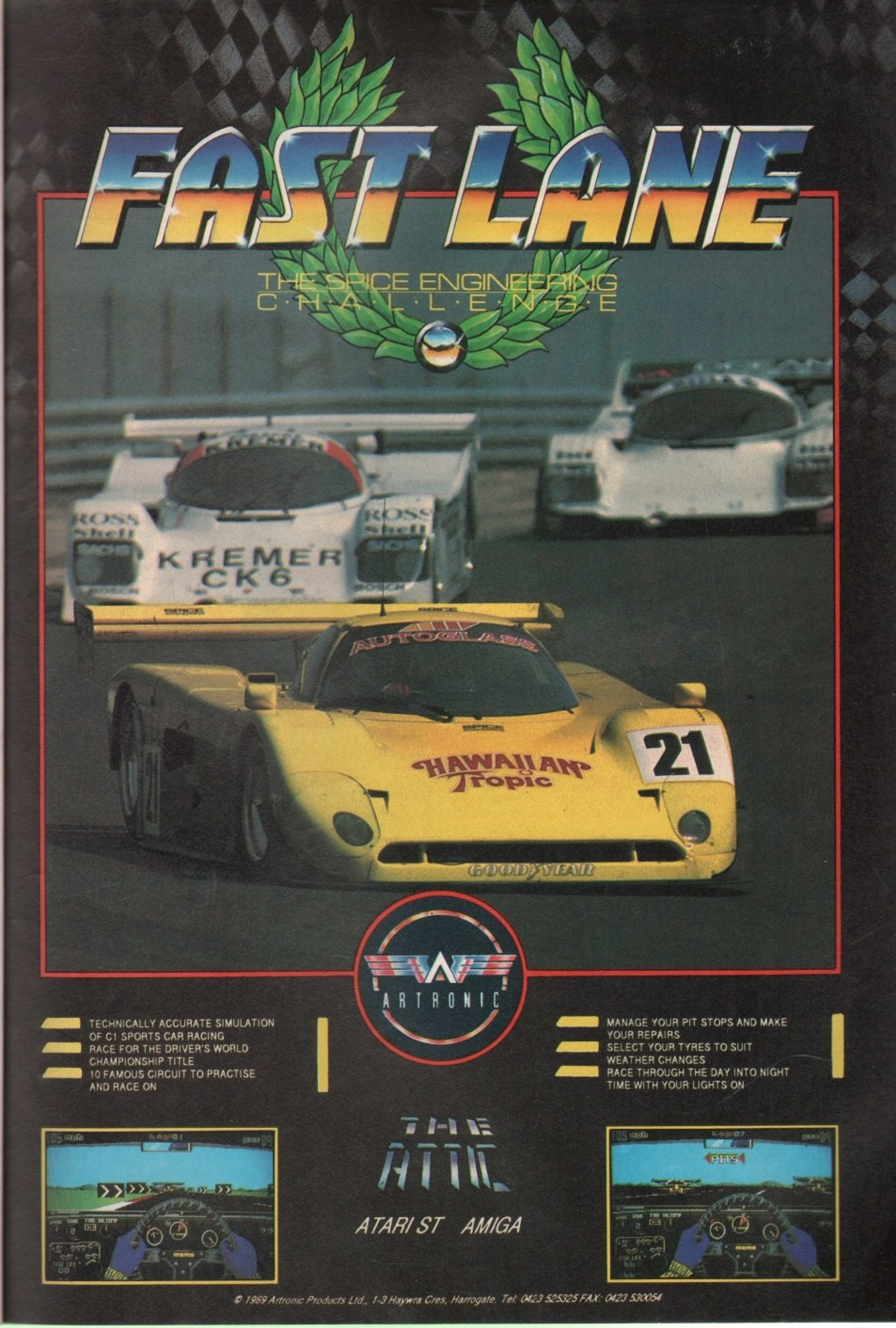


YOU have been dragged along to a seance. The fortune teller is a fake, but that doesn't stop you from becoming embroiled in an eerie adventure as the mark of the shadow is placed upon you. This is the beginning of Electronic Arts' new role playing game, The Hound of Shadow, which captures the feel of the books by H.P. Lovecraft.

With the mark upon you there is only a limited amount of time in which to free yourself. Investigating the mark takes you around the world, previous experiences – perhaps your involvement in the American Civil War – will help.

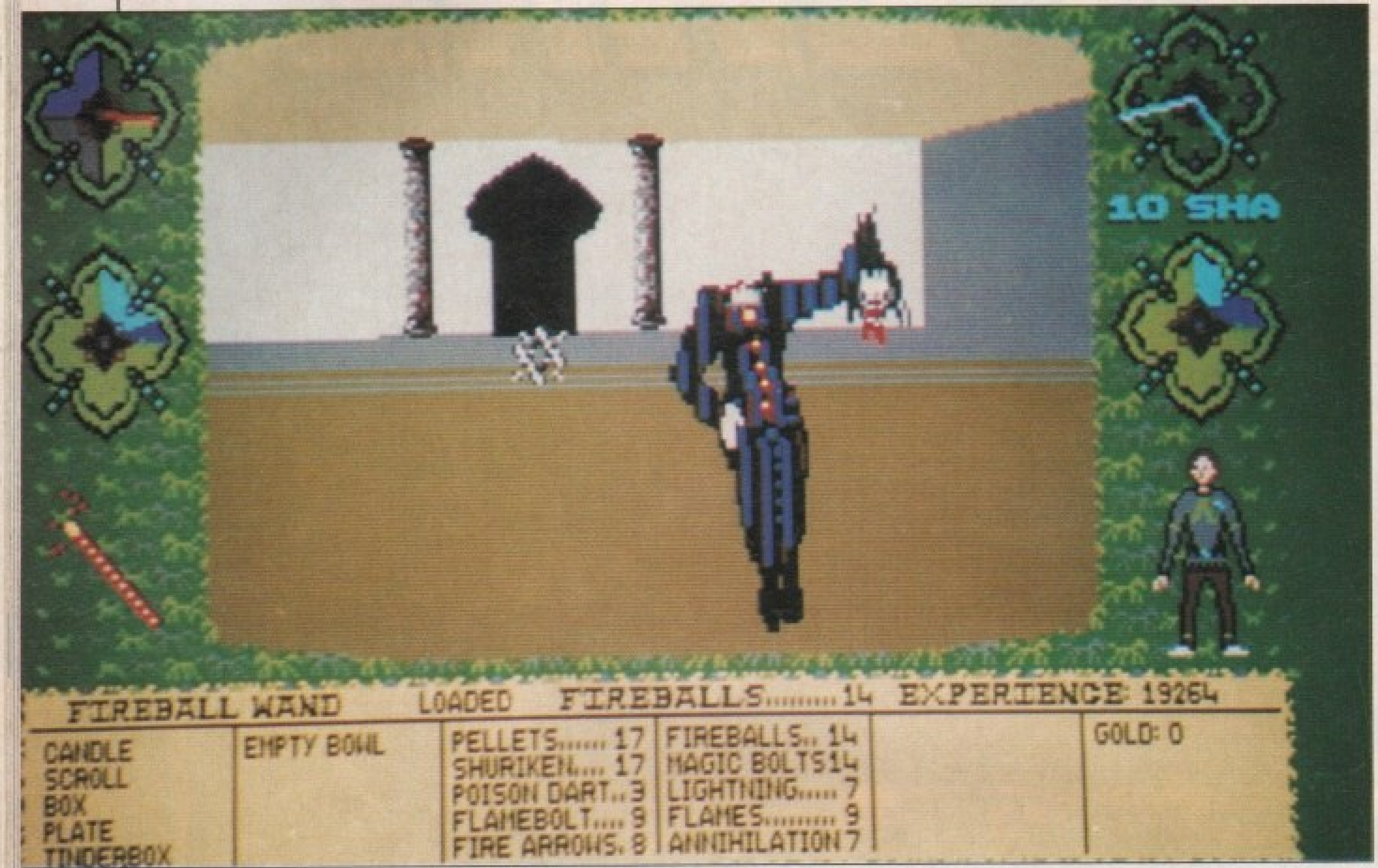
A pub in Norfolk and the reading room of the British Museum both contribute to the solution.

A carefully constructed combination of role playing and adventure game, the code has been produced by Eldritch games with wonderful sepia graphics to reflect the atmosphere of a game set in the 1920s. Out soon.


FAST LANE
THE SPICE ENGINEERING
C·H·A·L·L·E·N·G·E
KREMER
CK6
AUTOGLASS
HAWAIIAN Tropic
21
GOODYEAR
ARTRONIC
TECHNICALLY ACCURATE SIMULATION OF C1 SPORTS CAR RACING
RACE FOR THE DRIVER'S WORLD CHAMPIONSHIP TITLE
10 FAMOUS CIRCUIT TO PRACTISE AND RACE ON
MANAGE YOUR PIT STOPS AND MAKE YOUR REPAIRS
SELECT YOUR TYRES TO SUIT WEATHER CHANGES
RACE THROUGH THE DAY INTO NIGHT TIME WITH YOUR LIGHTS ON
THE ATTIC
ATARI ST AMIGA
PITS
© 1989 Artronic Products Ltd., 1-3 Haywra Cres, Harrogate. Tel: 0423 525325 FAX: 0423 530054

LET SLEEPIN

Brave



I'll never use Head and Shoulders again

EMPIRE has changed reality. The world has become cubic, kobolds are good guys, it isn't really that far to the chemists and God isn't dead, merely having forty winks.

Unfortunately, during his omnipotence's slumber a wicked arch-mage has taken over the world and several others besides. Now he has prevented the Sleeper from ever waking up.

You don't know what you are going to do but you must stop him, otherwise... Well, it'd be terrible, wouldn't it. He might privatise water. He might introduce Poll Tax. Yes, you must stop him at all costs.

That only leaves you with one problem. How?

Fortunately at that moment some half-dead kobolds appear at your door, just back from a similar expedition. Before they die they give you a device which will aid you in your quest.

Now it's up to you to brave the bandit-ridden roads, the freezing hills and snow demons, the trained

BARBARIAN I

Once more into the briefs

JUST when you thought it was safe to step back into your loincloth, Barbarian II from Palace has arrived. And this time he's out for... well, probably much the same things as last time actually – a spot of death and destruction, all nicely rounded off with a great haul of treasure to improve his credit rating.

Can't argue with that, I suppose. At least not to his face.

This time he's got help. There is a choice of playing the Dark Destroyer himself or his rather comely companion. Female barbarians? Gotta move with the times I suppose. Whether this move is to attract more female games players seems somewhat dubious after witnessing a few of her near-naked acrobatic feats with only her well placed jewellery saving her from exposure.

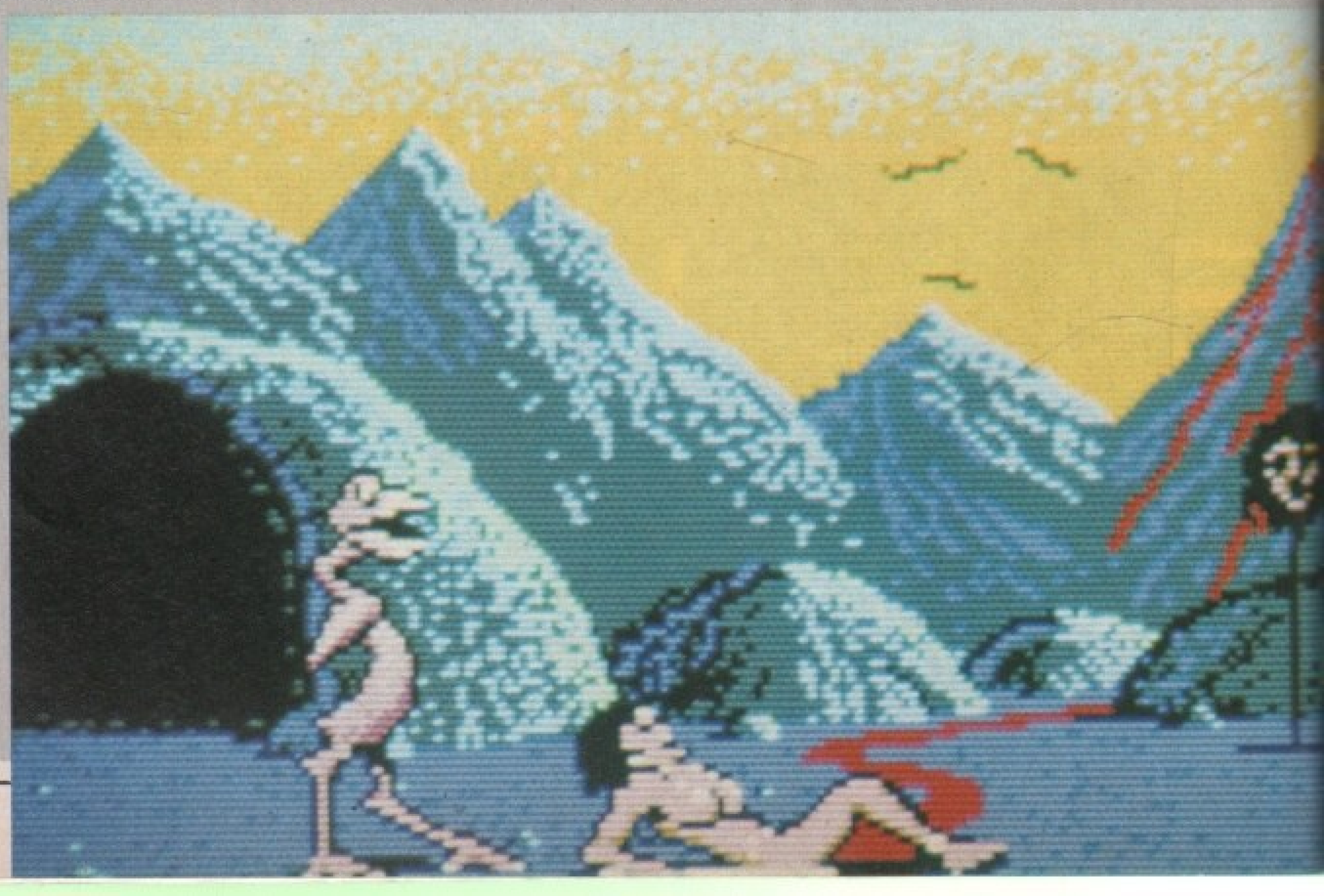
An amazing opening sequence, even by Amiga standards, draws you into the game. Nice animated effects and sampled speech even for the "Insert Second Disc" request.

Why can't everyone put as much effort into this sort of thing? One doesn't mind so much rooting around the box and manuals and swapping discs when it is done in an interesting and entertaining manner.

Each level consists of a maze full of undesirables almost begging to be hacked, slashed gouged and generally inconvenienced. Not only must you find the exit, but you must also collect the two magic items if you are to be able to withstand Drax – the big nasty – at the end of the game.

The items certainly are magic. When you pick them up they flash incessantly for some jolly good and arcane, if a tad annoying, reason.

The various bad guys, or bad things more properly, all require a different technique to overcome. Enemies floating off the ground are unlikely to be affected by a swing of the sword at knee height. Similarly,



NGODS LIE

rave bandits

archers in the capital, the denizens of the dwarven tunnels, the airborne attack of seagulls, the fiery fury of dragons and the terrible mind-pummelling wrath of (gasp!) the giant mice. Privatisation is beginning to sound better all the time.

The game, like some starborn software offspring between Mercenary and Dungeon Master, gives you the three-dimensional character's-eye view of the terrain and relies solely on the joystick or mouse for all operations.

Unlike most of this genre, there is no fiddling about with icons, and no text entry. If you come across a location with the correct objects in your possession the game assumes you know what you are doing and completes the actions for you.

This is a great bonus since not only can you sometimes get things right by mistake, and you are saved all that tiresome fiddling about typing and clicking and clicking and typing, trying to find the right combination of actions or phrases to bring about the desired result.

Of course this might not appeal to the purists, but if you're after mono text-only sagas, why didn't you stick with your ZX80?

Weapons. There are lots of these. You start off lobbing small stones and pebbles at people end up blasting them with lightning bolts. Ammo is usually collected from baddies you blow up on the way. Yes I did say blow up. Yes, with pebbles. No, I don't know why, but it's fun. Listen to me, here you are prancing round a cubic planet – it's no good going on at me about realism.

Whenever you meet someone they're almost sure to be a bad guy, unless they look exceptionally old and feeble or exceptionally cute and helpless. Anyone else, waste 'em.

The joystick, or mouse if you prefer, controls a crosshair in the viewing screen. Targeting with the cursor and pressing the button will fire the current weapon. When you pick up a weapon, if it is more powerful than the one you are using it will replace the current one.

The weapons' ranges vary considerably. With a simple sling you may be able to detect a baddie's halitosis, but with a longbow you can probably despatch them to that Rubick's Cube in the sky before they've even noticed you're in the neighbourhood.

Unfortunately some of the larger weapons can take an age to load, so you may have to resort to hurling shuriken at an irate dragon or lead shot at a master magician. Nobody said it was going to be easy.

It is vital to save the game every time you achieve something or pick up something new. The program has a very good load/save screen and it is possible to store upwards of about 20 positions on the data disc supplied – the disc that the program runs from – a definite one- up on those adventures that have you swapping discs continually.

The graphics are fairly good, and reasonably fast considering some are quite complicated. The people and creatures you meet are well drawn, although their movements can be jerky, which is very annoying when you are trying to ambush someone and he mysteriously transports right past.

The explosions are good and are accompanied by agonising screams. The fact that they seem to be emitted by throttled pigs is neither here nor there.

The puzzles are quite difficult to solve, but to be honest they often solve themselves. You will be aimlessly wandering around some barren plain when you trip over a molehill and discover some magic boots. Serendipity isn't in it.

Let Sleeping Gods Lie
£24.99
Empire

Sound	4/12
Graphics	10/12
Gameplay	11/12
Value	10/12

Overall – 76%

This also means you have to investigate every molehill, every rock and every dragon dropping in every kingdom. Some things are not very important and only help to keep you alive (not important?) but others are vital to your quest. There is no way of going back when you suddenly discover on the last level that you are missing a magic toothpick.

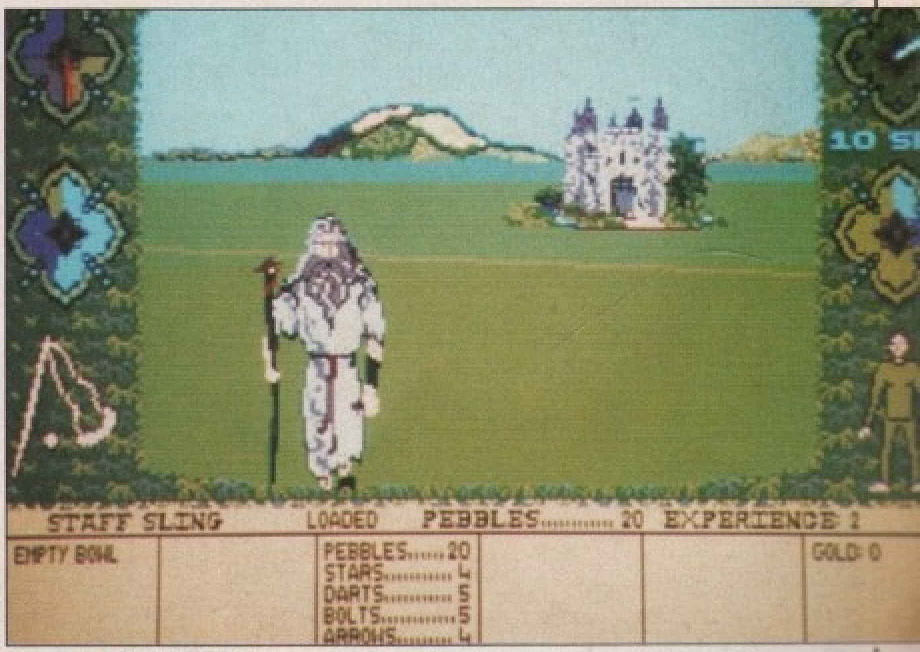
There are some good underground sequences and a tastefully decorated castle, both wisely placed to break the monotony of all those wide open spaces.

It is a good idea to get inside before nightfall unless you've been eating lots of carrots because the sky gets dark. As a matter of fact, it all gets dark, including the bad guys. Doesn't stop them from attacking you though.

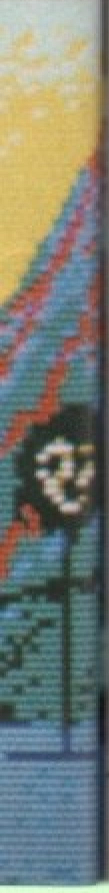
Sleeping Gods Lie may lack some of the strategic thought of the more conventional adventures, but it has a certain playability that prevents boredom and frustration setting in.

Although much of the game involves endless traipsing over the countryside, there is still something compelling about it which makes it all seem worthwhile, an elusive quality which can turn an otherwise mediocre offering into something unusual which deserves a look.

Green



He won't attack you, he'll just run away



there is no point going for the neck if your opponent is only two feet tall.

This means a separate strategy needs to be evolved to defeat each type of beast, more so than in other games of similar ilk. A strong will and stern resolve, never mind the possible advantages of being stone deaf, will be needed to overcome the rabid assaults of the giant chicken, presumably recently escaped from a neanderthal Col. Saunders.

Care must be taken not to let a monster get your back against a wall or with a hole behind you. Look around, find your own ground, because if you get trapped you should have listened to that nice insurance salesman who called last Thursday.

Navigating the maze is fraught with problems, not the least of which are the large holes some unthinking workmen have left all over the place. You'll need to take a running jump at these.

The other problem is that it all starts looking the same: Didn't I pass that molten river and the skull on the stick a few minutes ago?

Barbarian II
£24.99
Palace

Sound	9/13
Graphics	10/13
Gameplay	10/13
Value	9/13

Overall – 73%

If you get hopelessly lost it is time to take a look at the poster that comes with the game. This won't help, but at least it will take your mind of the fact that you're going to die in some horribly grotesque and totally unreasonable fashion.

On the whole the animation is nothing spectacular, with the exception of the leaping sequences and the death scenes where our hero or heroine slumps to the ground, usually followed by the victorious baddie celebrating over the prostrate ex-barbarian with a spot of sampled sound.

Palace has made up for spawning a generation of bimbo marketed games by producing a worthy sequel to a good game.

Green



LISTEN here, puss faces. You thought you'd wiped me out two years ago. Don't deny it. I heard you. But while the scumball group of soldiers that you call your army was celebrating its so-called victory, I rounded up what was left of my crack Xenite troops, slid past your unguarded ships and flew home. Ha-har.

In truth the victory was mine. Because since that fateful day not a moment has been wasted in rebuilding my mega fighting force. And now I'm back.

Some are calling me a bad loser. I don't care. There are no prizes for coming second. This time I will win. First place. Numero Uno. There is no doubt in my diseased mind. Let there be no doubt in yours.

I've planted five bombs through history. Yes, the very fabric of time is about to explode into a quintillion million tiny pieces. Nothing you can do can stop it. Nothing. I'm too strong, you see – too organised this time. Ha-har. This is no playground scrap. Go home kiddies. Shove off. You've got no chance.

It's no good coming at me in that thing you call a Megablaster, even if you have got five of them. Don't waste your time. I'll blow you away. Small but perfectly formed? Hah! It's pathetic. Pah! I spit on your Megablaster. Pah! A great, green gob. Now what you gonna do? Eh?

Don't bother buying equipment off Crispin the shopkeeper. Or selling it to him. Ha-har. He's a bigger thief than I am. Ha-har. Anyway, you've no money. To get cash you'll have to kill my agents and pick up the scraps they let fall. No chance. They don't die easily. And they won't listen to reason.

There are thousands and thousands of them. From the lowest form of life in pre-historic times, through to metallic mayhem in the spaceways of centuries yet to come. There is nothing, do you hear, nothing you can do.

But what's this? How long have you been able to reverse down the screen? My espionage network didn't inform me of this. B....r. This calls for a re-think....

I know – I'll put a large guardian at



XENON 2

This time it's war!

Xenon 2
£24.99
Imageworks

Sound	████████████
Graphics	████████████
Gameplay	████████████
Value	████████████

Overall – 100%

Supreme

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the end of every stage. And on the last four levels I stick one half way through as well. Ha-har! You'll never get through *all* of them. And if just one bomb is left... When the fuse runs out... Kaboom! It's KYAG time.

I don't give a damn if your Zapper can eradicate everything on the screen in a blinding flash of light. No. What care I if your Side Shot causes bullets to emit from the left and right side of your ship.

Pah! I spit on your Electroball, ha-har, which sticks to your ship until you hold down the fire button. I play lipball with your mines, *(Xenites don't have feet – Ed)*, laugh at your Speed-up stripes, and spit my rotting stumps of teeth at your Super Nashwan Power. I say Pah! to the lot of them.

My Brachiopods will wiggle deep into your ears and suck out your brains. My crusty-skinned Trilobytes will shoot your paltry defences to pieces. The probing appendage of my Nautilus will launch indestructible mines into your path. The powerful radiation emitted by the time bombs has mutated these once harmless beings into crazed agressors. They eat little boys like you for breakfast.

I can't lose. You see I'm too fast, too smooth, too evil. And this time I've brought with me the most awesome army of agents the Amiga computer has ever seen, coupled with sound effects to break your eardrums. Nothing can stop me. The universe will be mine. Mine, do you hear, all mine.

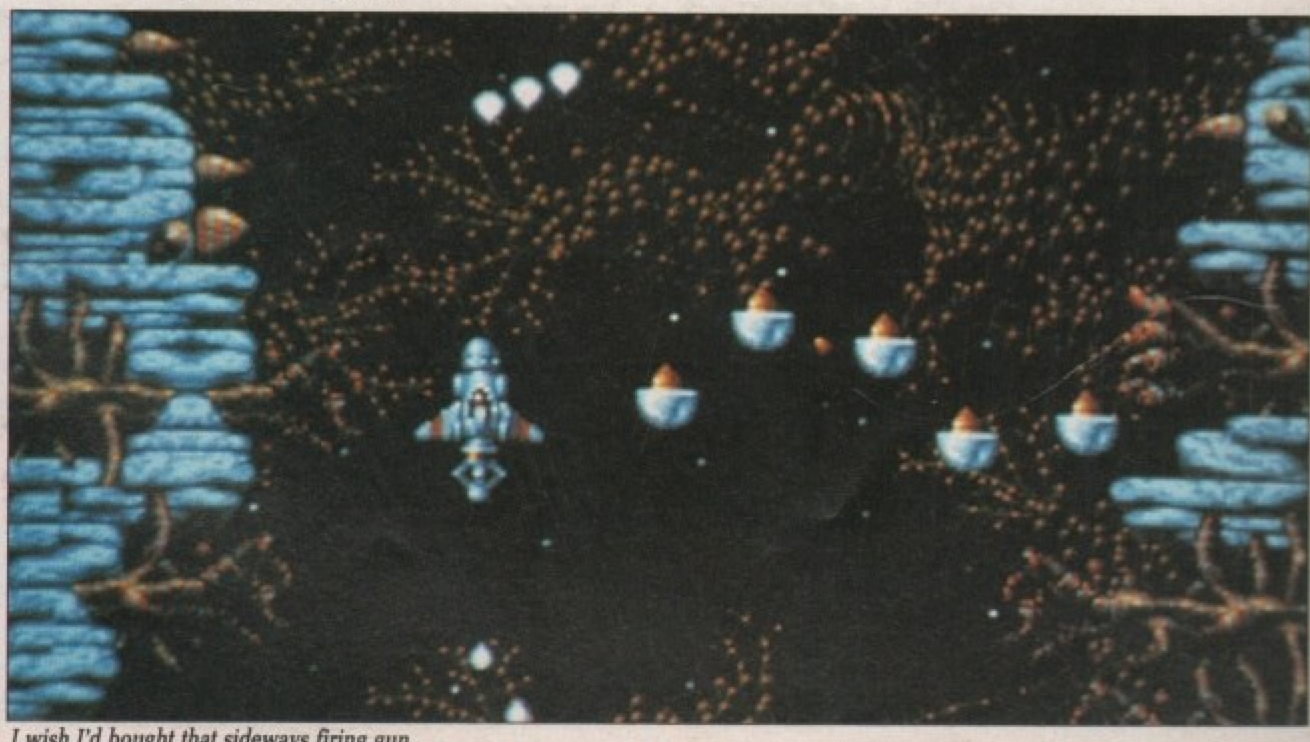
And all crammed on to two discs with music by Bob the Bass.

Jeff Walker





I lost my last life getting you this picture



I wish I'd bought that sideways firing gun

NEW ZEALAND STORY

Classic platforms and ladders

TIME, there is never enough of it. Some days, as I re-read H. G. Wells' The Time Machine, I ponder on the possibility of time travel, of the paradoxes, of what one could do if the past was mutable.

I was in one such mood of quiet contemplation when he who must be obeyed, gave me an innocuous 3.5in disc and said: "Review this, Earthling".

Gratefully clutching this manna from heaven, I scuttled off to the corner and donned my cap on which the word Reviewer was writ large.

The disc drive whirred, the screen flickered into life, and something strange started to happen. Light blurred, colours streamed, time slowed, stopped, and then began to run backwards. The years rolled back, my midriff shrank to an acceptable size, a hairline receding faster than a Brazilian rain forest sprang forwards with a vengeance.

The year was 1984, with all its Orwellian connotations. The Olympics were starting in the city of the angels, it was the 169th anniversary of Wellington stuffing Napoleon at Waterloo, and the Great God Spectrum ruled the Earth.

Ocean Software had worked some arcane magic and brought me back all those years to play New Zealand Story, a conversion of a Taito coin-op.

You are a small fluffy chick out to cross the islands that make up New Zealand and rescue imprisoned poultry along the way. The chickens you are rescuing obviously aren't in a battery farm – there's only one victim per cage. Blimey, you could jam at least 50 more in there.

Anyway, you *are* that small fluffy thing leaping around those platforms, that *is* a bow and arrow you are carrying, the defenders of the coup *are* armed in a likewise manner, and you *do* lose a life every time you get hit by one. It's more than the opposition gets though, so you should count your lucky feathers.

Leap from platform to platform, head for the cage before the timer runs out and your pecking pal ends up as six Chicken MacNuggets. Koala bear-like things and all manner of small not so cute animals attempt to get in the way, set snails on to you and fire arrows.

Thankfully the first two levels of these things are pretty easy, always making sure you don't get barbecued by running into an electric fence.

Every animal you kill is transformed into a piece of fruit, the collection of which boosts your score. Great for you, not so good for them. Occasionally you'll hit an animal that leaves behind a new weapon. The first one is an unlimited supply of bombs, which explode with a crispy crunch.

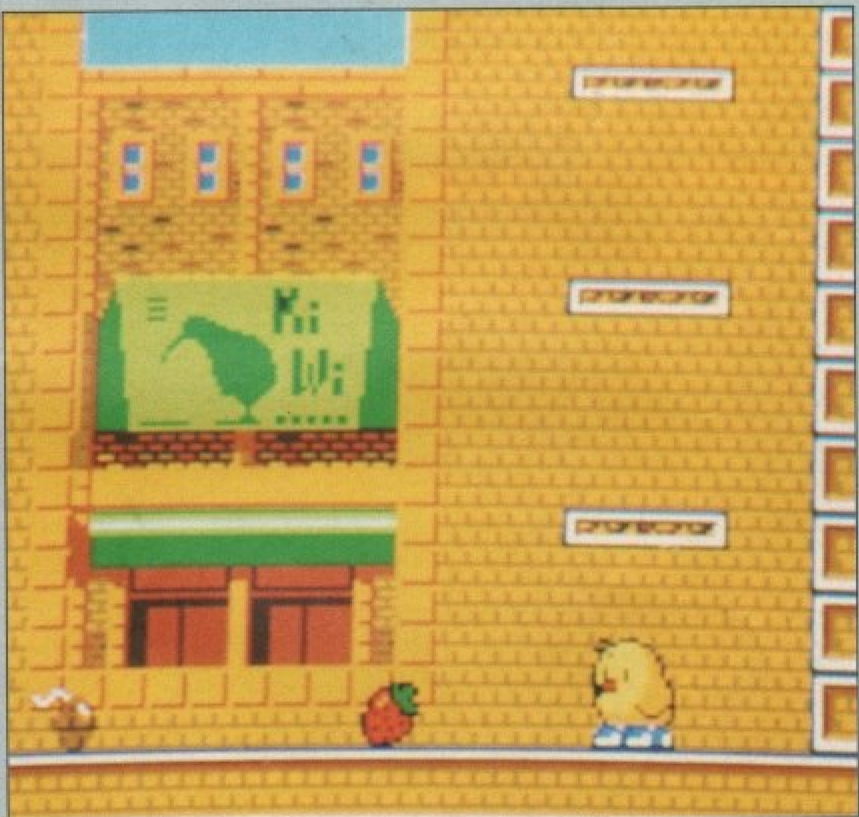
Just in case you were thinking this was all leapy-leapy, jumpy-jumpy, there are also aerial activities to consider. Clamber aboard a balloon or, as in level four, a flying bat appropriated from a luckless bear, and take to the airwaves, watching out for the planes with engine trouble or hydraulic failure.

The excitement is, of course, immense. This is state of the art platform action, with no colour clashing either. But then, as the disc flopped out of the drive, as I sharpened my piece of charcoal ready for the scribing to follow, Father Time started to catch up with me.

The Tories won another election, the release dates for Star Trek came and were left behind in the distant past, the hair fell apologetically on to my writing slate, empty beer cans appeared as if from nowhere, the belly resumed its previous portliness, and I was sadly back in 1989.

But *you* can take that trip back in time, back to when Manic Miner was king. Be warned though, time is a precious thing, there never is enough of it.

Duncan Evans

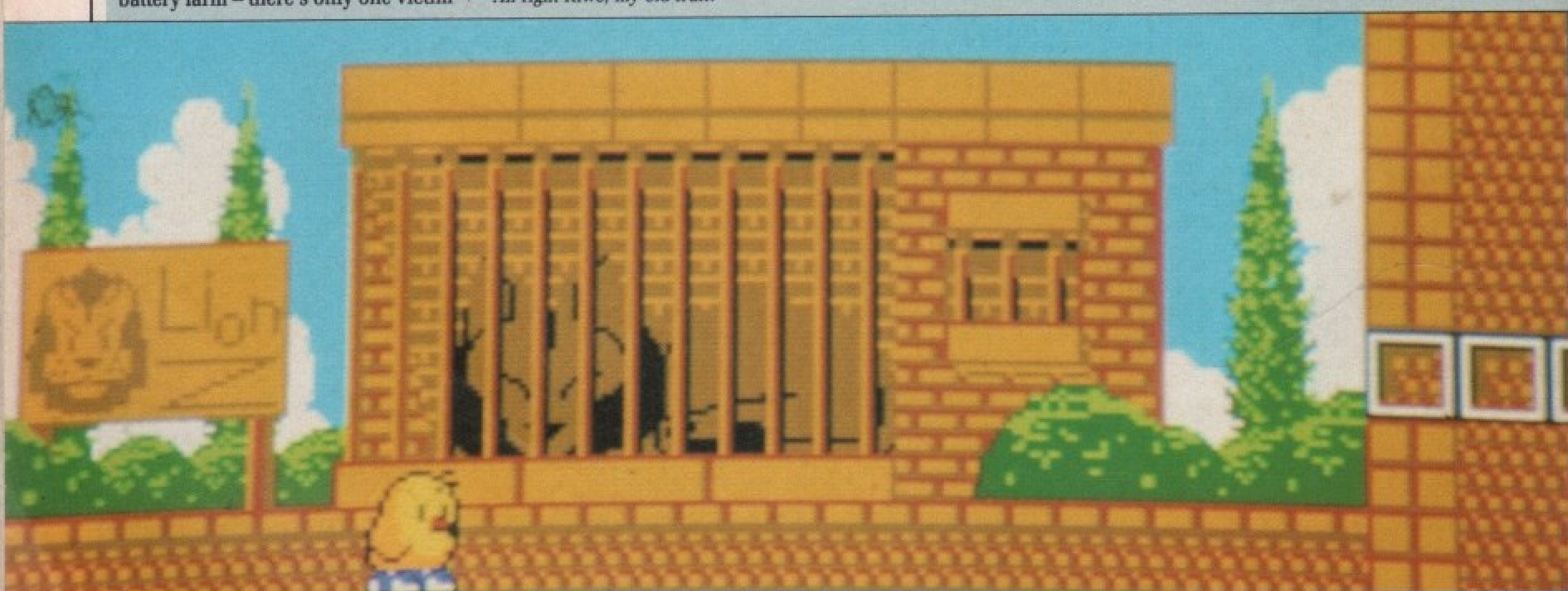


All right Kiwe, my old fruit?

New Zealand Story
£19.99
Ocean

Sound
Graphics
Gameplay
Value

Overall – 49%



Lion down on the job again

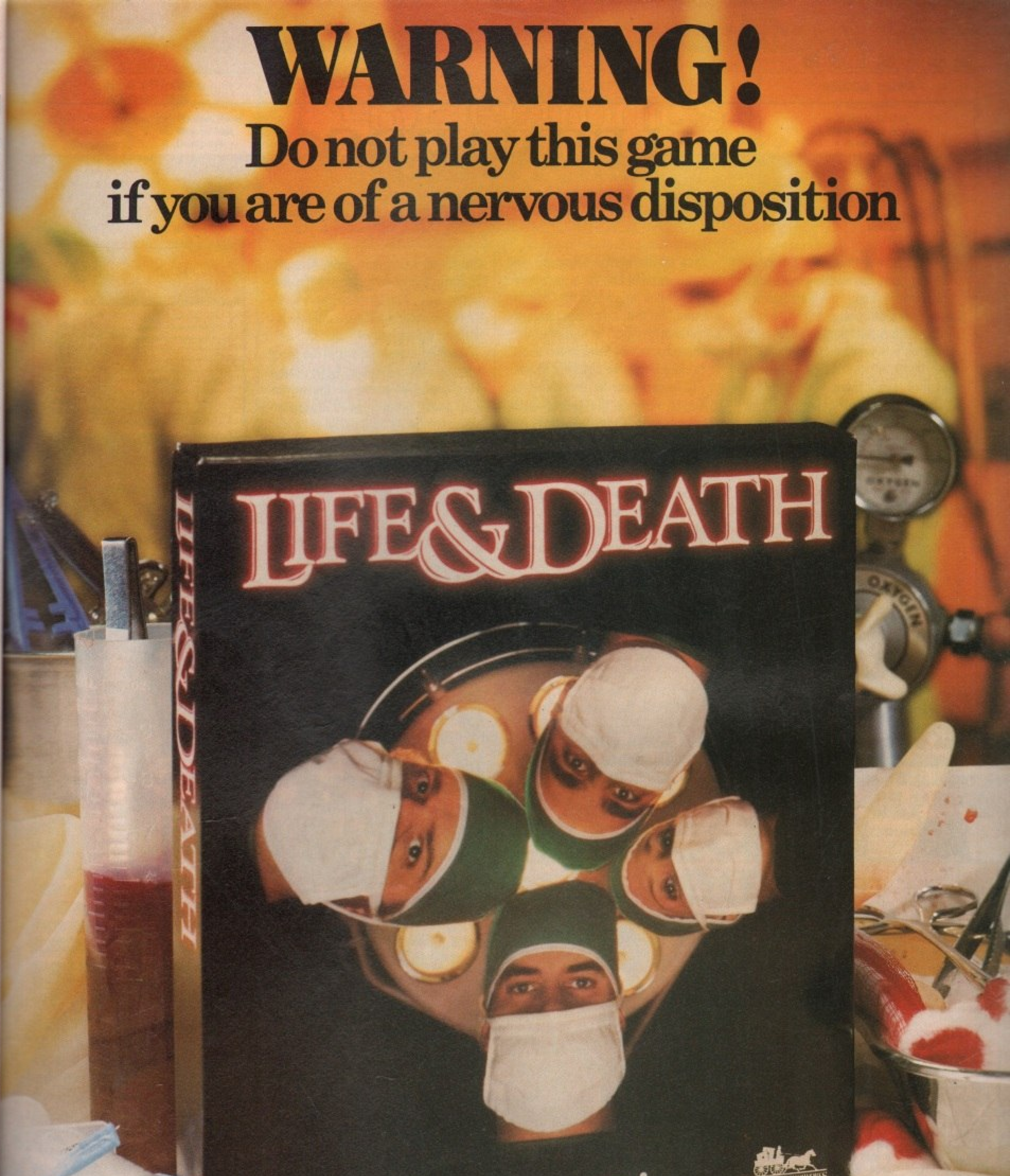
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Evans



LEONARDO

Burgling becomes a fine art

LET'S get one thing straight here – this game has nothing to do with that chap da Vinci, the Renaissance painter, sculptor, engineer, biologist and left-handed person. Instead, Leonardo is a very small thief who'll steal anything that's not screwed, nailed or taped down.

The short attract sequence has him breaking and entering a house, accompanied by very high quality sampled sound. A valiant attempt is made to reproduce a digitised toilet flush; valiant, yes – accurate, no. Still, it is probably the first toilet flush to appear in a computer game, so we can let it pass.

Leo's methods are curious. Instead of the usual dart in, grab and have it away on the old size 11's as fast as possible, he likes to make a line with the goods first. Every job he does has three things to steal, and each slides freely when pushed, so a great deal of care must be taken when manoeuvring them.

Each of the banks, museums and warehouses that Leo visits are littered with rocks. A little out of the ordinary granted, but this is a computer game, so authenticity isn't at a premium.

These rocks can be shunted about, or broken if they've nowhere to slide to. They can also be used to great effect to remove the rather bothersome guards. There are always two of them.

The bobby plods along horizontally before homing in vertically. The Boohoooh (a ghost) floats vertically towards you before homing in horizontally. This means that Leo is always being pursued, and if caught, it's another spell in the slammer.

Thankfully, the guards always start off from the one place in each level, so if you can block that off, the rest of the level can be completed with only the (generous) time limit to worry you.

Each level is about four screens full, with all the important details shown on Leo's tiny radar scanner. Unfortunately, there are many other helps and hindrances that Leo's homegrown and consequently dodgy scanner doesn't show.

Wads of money lie about the place – picking them up gives 1,000 points. Manholes give access to the sewers and quick point-to-point transportation. Dynamite returns the guards to the start, and the paralysing rock (?!) stops them in their tracks for a few seconds. There are also handcuffs, which do as good a job as the guards in apprehending Leo.

Leonardo
£24.99
Starbyte

Sound	■■■■■■■
Graphics	■■■■■■■■
Gameplay	■■■■■■■
Value	■■■■■■■

Overall – 82%



I wouldn't mind, but I've got to share this cell with three ST programmers



Watch out for the Old Bill

Every once in a while there appears a bonus level, which has a tiny time limit and hundreds of bonus pearls, not to mention the two guards. The idea is to get as many pearls as possible in the time allowed; fairly predictable, no?

In fact, the gameplay is essentially similar to the veteran arcade game Pengo, which spawned many lookalikes on the 16k ZX Spectrum. The similarity ends there – Leonardo has sharp, though small, graphics, very well executed sound, and a well planned set of levels.

Speaking of levels, there are certainly plenty of them – 50 in all, with levels 10, 20 and 30 accessible via passwords.

Leonardo is really a puzzle game, because quick thinking is more important than quick moving. A good puzzle game should allow the player a choice of start levels, but Leonardo's second and third levels are very hard.

You could cheat and use the passwords, but me giving them to you now would cheese the editor off, so you'll just have to work your way through. A pity, because levels 11 onwards are very easy. I got them off Max, so check out his column this month.

Considering Leonardo was written by a Swiss cracking crew, the effects are remarkably understated and the gameplay far deeper than would be expected. A very solid, reliable game that holds together well, despite becoming a little too difficult at times. Worth a long, hard look.

Stewart C. Russell

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THE CHAMP

Floats like an anchor, stings like a moth



One good sneeze and he'll be on the canvas.

WHILE the game loaded I read through the manual, which has an introduction so pseudo-intellectual that it may well make it into Private Eye's Pseud's Corner.

It explains the story and rules of boxing – the game is endorsed by the WBA, incidentally – going into detail to such an extent that it reminds you that referees must keep their fingernails cut short for safety. It also explains the nine fouls, although none of them can be reproduced within the game.

Once loaded you are presented with a menu from which you can select one or two players, Training, Hiscore Table, Show Wolrd (sic) Ranking, Create a data disc, Reset the World Ranking (spelled correctly this time), Sparring and Start Game.

You enter into a bout of sparring to practice the moves. The joystick is used in a similar way to other combat games. The boxer can move left and right, defend his head, stomach and chest, plus he can dance. This involves jumping up and down on the spot, rather than doing the Paso Doble.

With Fire depressed you can produce hooks, straight punches, stomach punches and the ominous-sounding killer punch, which is rather like a fast cricket underarm bowl, continuing the motion through to end up with your fist under your opponent's chin.

Best of all is the clinch, which results in both boxers grabbing each other in a passionate embrace which almost certainly falls on the wrong side of Clause 28.

You score for each successful punch, although you're never really sure what your score is because the score board is so difficult to read.

Each player has a morale and condition factor which decrease as each successful punch rings home. If they reach zero the boxer falls to the ground and is out for the count.

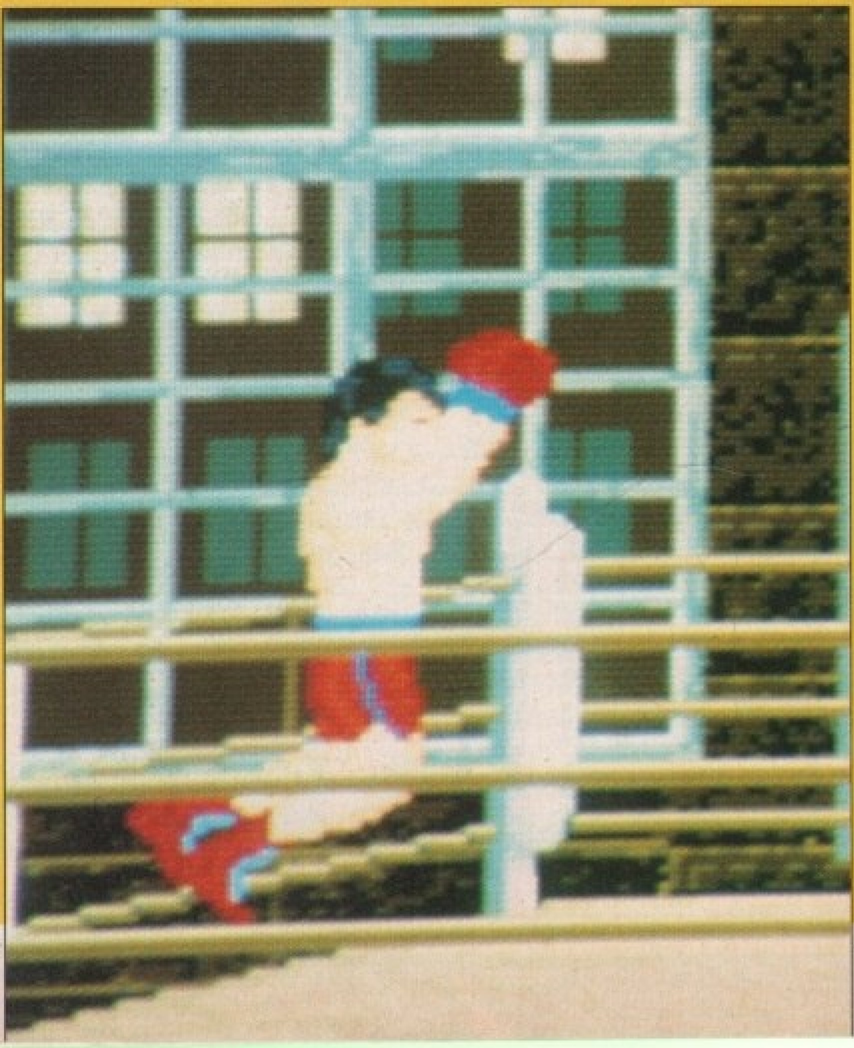
Although I managed to knock my opponent down 17 times in the first round – why didn't the ref stop the fight? – I lost because the opponent wore me down with a succession of puny little punchettes.

Following a knockout your are treated to a nicely executed TV-style action replay, complete with "motion blur" effect as the boxer crashes to the canvas.

The action replay isn't the only good thing in The Champ. The referee darts about authentically, getting in the way – unfortunately you can't punch him – and when a boxer is pushed up against the ropes, the ropes wobble nicely.

The sound effects are quite good. The referee says lots of referee-type things like "One, Two, Three, Four..." and as the punches connect they sound just as artificial as they do in the movies.

Obvious effects like the end-of-round bell are missing. And the music is dreadful. The box proudly proclaims the fact that the game contains the theme from Rocky. It is so appallingly arranged that it would be a positive advantage to have a bad case of cauliflower ears.



IMAGINE you are a strong-jawed blond hero type. Got that? Ok, now imagine that your favourite princess gets kidnapped by the local evil baron. What would you do?

Would you hop right on your space chariot and get on over there, casually disregarding any thoughts of personal safety as you blast through heavily defended castles dispensing molten laser death to all who upset your sensibilities? What do you mean, no? Of course you would, you're a hero. Aren't you?

So much for the plot, what about the action? Chariots of Wrath follows the line of thinking that if you take a few old classics, spruce up the graphics a bit, work them into a plot and stick them all together you will get a great game. Sounds like a recipe for disaster, doesn't it?

Funnily enough, in this case it seems to work. Perhaps not to the epic proportions Impressions may have hoped for, but then what do you expect using old ideas?

The different levels are held together by a map screen. This is a

CHARIOTS OF WRATH

Look back in anger

Chariots of Wrath
£24.95
Impressions

Sound
Graphics
Gameplay
Value

Overall – 71%

rather nice graphical parchment representation with a large X indicating where you are, and therefore which stage you will be entering next.

The first phase is a reaction timer. You have a crosshair sight, things pop up in the corridor in front of you. Do the obvious. If you die you don't lose a life, so there is not much point to this level apart from amassing a large score to make you feel better.

Next you must break out of the castle. I wonder where the idea for this level came from? It has some nice touches to it though. The standard style Arkanoid bonuses are present, with a couple of extras. The bricks are all nicely aged and the occasional arrow wiggles down from the battlements, intent on making its point.

Taking a shortcut through the marshes leads you to shoot-'em-up land. Here you must pilot your spaceship through wave after wave of vertically scrolling marsh fiends. Sorry, did I say spaceship? I meant, of course, space chariot. Laser cannon, wingmen, shields and probably speed stripes can all be picked up by blasting the friendly orb that comes around every now and then.

There is a cunning programmer plot to this level – the backdrops are sometimes so stunning that you take your eyes off the baddies just at the wrong moment. Watch out for the trolls throwing blackcurrant jellies.

Later stages include a type of platform game and a version of Asteroids. All the stages are repeated, not in sequence but depending on which area of the map you are currently in.

This stops the game from becoming repetitive, as do the subtle changes in the layouts and graphics in each successive level of the same type, with the exception of the reaction test and the Asteroids game, which are always the same.

The backdrops and scrolling on the shoot-'em-up levels have clearly been done with a great deal of thought; there are even little retro-jet thrusts as you manoeuvre your ship. Disappointingly, the end-of-level monster is just an inanimate graphic which moves predictably and unrealistically, however nice it may look.

Games of this type generally tend to have one really good stage – the rest becomes annoying and boring as you have to go through them to get to the best parts, rather like a D. H. Lawrence novel.

Although undeniably the most effort went into the scrolling death stages, in Chariots of Wrath the other levels stand up quite well, giving it a nicely rounded and well constructed feel.

Green



All in all, it's just another brick and ball



You don't shoot this one, it's just French dressing

As well as the boxing matches themselves, you can take a trip down to the gym for some training. This involves skipping and having a go at the punchbag.

All in all, what could have been a perfectly good boxing simulation has turned out as something positively mediocre.

The moves all work in the way described in the manual, but boxing is a sport of lightning fast reactions, putting together a series of orchestrated punches – Bill Conti said that, not I – and the game's response time to my energetic joystick wiggles was frankly not fast enough to give any real impression of a boxing match.

You feel the game is waiting to catch up with you all the time.

J. K. Nellwood

The Champ
£19.95
Linel

Sound
Graphics
Gameplay
Value

Overall – 42%

SKATE OF THE ART

Going down the tubes

TIME was when getting air meant going for a quick stroll, and a real hip skateboard was a short plank with half a skate at each end. Sheesh, even the very term getting air is a little old hat – all the juves groove to atmospherics these days.

Trouble is, skateparks are either pocket handkerchief affairs with about 40,000 skaters per square metre, or huge, soulless places which cost a fortune to get into. So all the mad, bad and rad dudes have started building their own courses, wherever they can, and with whatever they can find.

Skate of the Art starts, against all possible odds and LRT's safety standards (whichever is the lesser), on the platform of Earl's Court tube station.

Various bits and bobs are arranged in a one-dimensional way along the platform, for the special delight of your little skater. Tasteful brick ramps must be climbed at just the right angle and then coasted down gracefully.

Manholes, and what look indistinguishable from piles of books and filing cabinets, must either be jumped or flipped, depending on their size.

There's no bonus for completing a course without error – they can only be done in one faultless run otherwise you lose a board and have to sit through the whole tedious business of the little skater setting his board down at the start.

Each of the courses is short. The real skill lies in timing the movements just right. The 20 courses track your progress through the skateways of the world, with various panoramic views and geographically relevant obstacles.

The preamble to the game is quite well done, with a series of simple but effective attract screens. The controls are explained in rather a neat way. You are presented with a picture of a joystick and your little skater in a small window. You move the joystick, the joystick on the screen moves, and the homunculus obliges with the relevant action. Simple, but neat. It kept me happy for half a minute or so.

Although the attract mode works, the in-game graphics are not great. In fact, not to put too fine a point on it, they're blocky and wouldn't be that remarkable on a C64. Most of the screen is taken up by a huge upturned skateboard whose wheels move in sync with yours. It really only acts as a scoreboard.



What a stupid place to leave a skateboard

The top hundred or so pixels do the interesting bit. The smoothness of the scrolling would be remarkable on a lesser machine, but we are in the real world, so I'll try not to mention it. The tunes can be lived with, but the game effects are limited to a rather pathetic "Aah!" as your skater wipes out again.

By making the first course very difficult until you learn it, and then making it a mere formality when you know how, Linel has killed any urge to progress with the game. It's too simple, too hard and too dull to charge any more than £1.99 for, despite any effort that went into it.

Skate of the Art's only claim to fame is that it comes from Liechtenstein, the little principality which is too small to hold Captain Bob and his bank account simultaneously. Unless you're on a "Buy Liechtensteinian" drive, the atmospherics are better elsewhere.

Stewart C. Russell

Skate of the Art
£19.95
Linel

Sound
Graphics
Gameplay
Value

Overall – 46%



Skate and chips, flying tonight

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CASTLE

Goodness gracious

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Graphics	
Gameplay	
Value	

Overall – 45%

CASTLE Warrior: The name conjures a warrior so hard that even battlements quake in fear. Real life, or what passes for it, is never that good; it's the old story of warrior breaking into the oppressive character's castle.

Much the same idea as those classic mainframe games Hack and Moria, except this one's got graphics and sound. Pan back in time and space, in suitably impressive Hollywood style, to a land which has known peace for, well, at least 50 years.

Edelwulf the Great united all the tribes by the time honoured technique of whomping them until they gave in.

Edelwulf's son, Edelred the Good, was more of the peaceful and wise ruler type. Well, maybe "was" isn't quite right – but it might be, soon. For the one malcontent, Zandor, just happens to have poisoned the king's food, and the end is nigh for Ed the G.

For such a peaceful place, the king's son, Edred the Brave, is uncommonly handy with a sword. I suppose it could be called a ferrous deterrent, the Olde Worlde answer to the ICBM. Considering Edred's got the musculature of an overcooked chipolata and has the delicate footsteps of a skipping elephant, he's pretty sharp with the old blade.

Edred – that's you, if you're a little slow on the uptake – has vowed to bust into Zandor's stronghold and convince the old codger that handing over an antidote is a fair alternative to becoming the world's first human kebab.

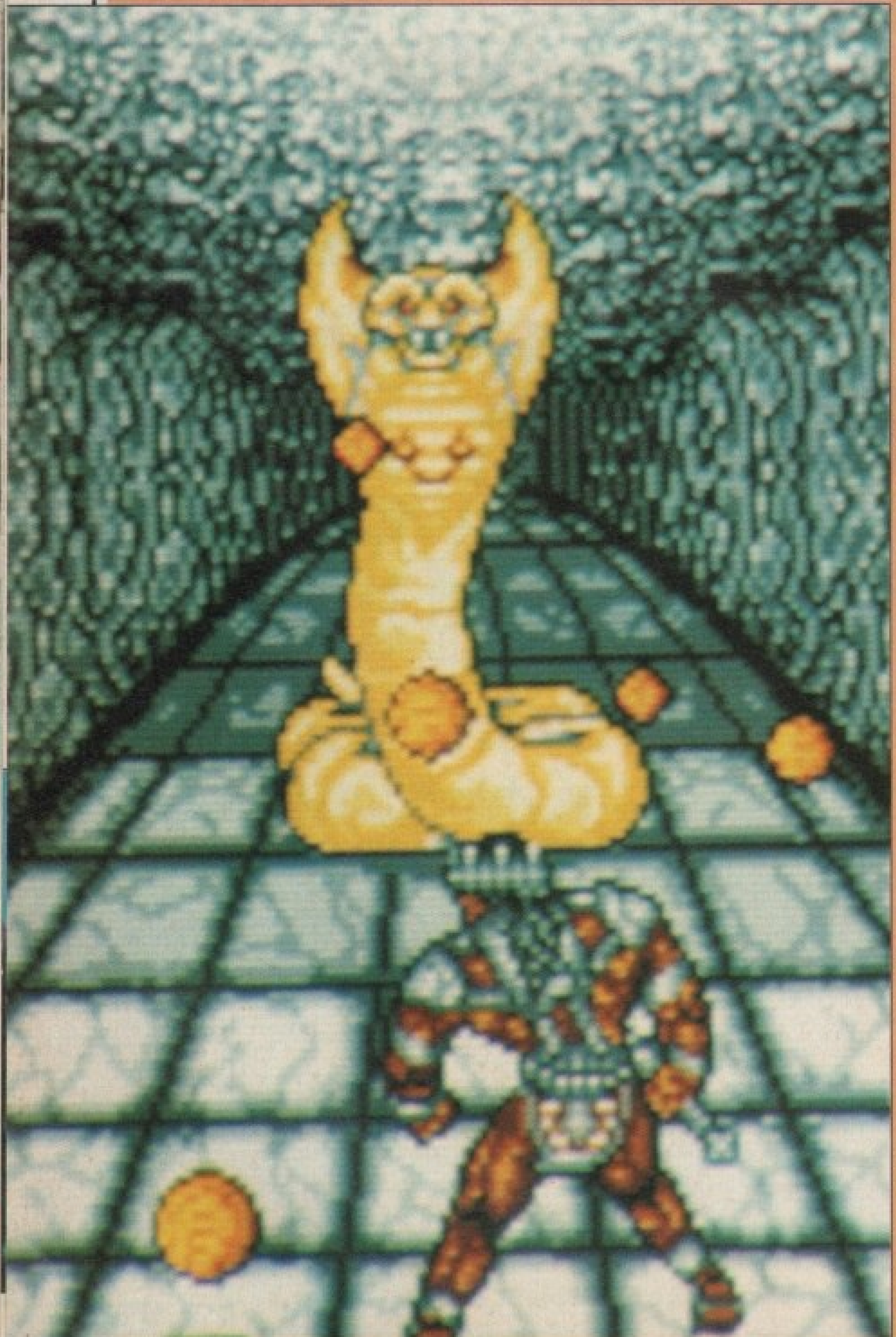
Zandor is hip to this ruse, and has rigged up a few surprises. The entrance hall is filled with evil creatures, all of which aren't good for the health.

If the manual's to be believed, there's a large snake at the middle of the passage. Rice wine would be enough to take the feet from any hero, but it turns out to be a ravening typo in the shape of a snake which wobbles at you while spitting fireballs. These kill you, but the idea is to kill the monsters by returning the fireballs.

Zandor's castle isn't your standard Wimpey home. Once past the spacious entrance hall, it's through to an underground river, guarded by a dragon even more dangerous than a crazed rottweiler. A few well aimed spears gets rid of that pest. Once on to the river – where a canoe appears, thankfully – it's a dodge-the-nasties trip along the river.

The only thing between you and Zandor is Zandor's house pet, Jibba the Monster. This guy is not nice. He must be hell on the postman.

And Zandor isn't exactly a push-over, what with all the nasty spells he has a habit of chucking – a degree of agility is required here. After that, it's all over bar the residual monsters who pop up on the way home.



INDIANA JONES

THE man with the hat is back, and this time he's brought his niece. Well, not quite. But dontcha just love games developed with ail formats in mind? Isn't it a great feeling knowing that the game running on your immensely powerful Amiga sits just as happily on the Spectrum?

Believe me, it shows. The multi-million blockbuster film has been rendered into pixel form by US Gold, and I have to say I'm not happy with the job that has been done.

Now you must have seen the film, otherwise you wouldn't be interested in playing the game, buttering the tea shirt and eating the soundtrack album. This does help. Not with making the game any easier or playable, but in convincing you that this is vaguely connected to the real thing, and thus a worthwhile game.

Unfortunately it isn't a worthwhile game. Only a very worthwhile marketing exercise. But there you go, that's the software biz for you.

Indiana Jones is on the last crusade (before infirmity strikes) to find the Holy Grail. He must get to it before the Nazis do. The Grail goes from being the cup of everlasting youth to a power of great destruction if in the wrong hands. It sounds suspiciously like Raiders of the Lost Ark, and indeed it is.

The computer version takes four key sequences and makes them into the four levels of the game.

Part one, accompanied by a nice little digitised piccy, casts you as the young Indy, played by River Phoenix of course.

This is sideways scrolling rocky platforms and ropes territory, populated with knife-throwing indians, gun-toting hoodlums and falling stalactites. The idea, as on most of the levels, is to collect certain objects which enable you to progress to the next. Pieces of stonc tablets, the diary, the cross and the Grail itself all have to be picked up along the way if you are to save the world from the Nazi jackboot.

The first level then, has you traversing these caves, avoiding the indians, watching out for the platforms which crumble underfoot, picking up vital supplies of whips and torches – it gets dark otherwise – and swinging from rope to rope over water.

A couple of points here. Firstly, the knife thrower hurls at random so luck largely determines getting past unscathed. Secondly, where there are two gunmen patrolling, you have to be lucky enough for them to appear

WARRIOR

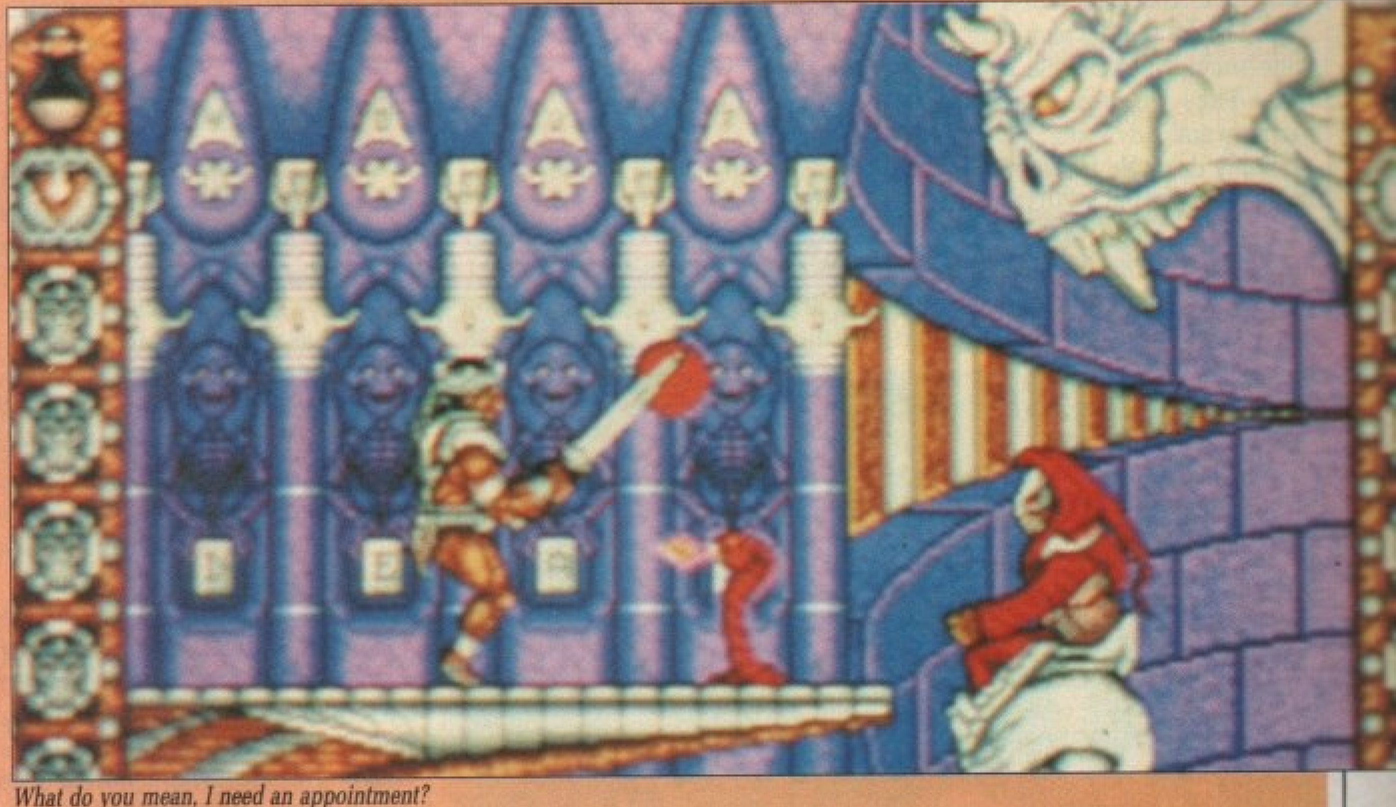
small balls of fire

Castle Warrior, if you took it all apart and analysed it, could be quite impressive. But when reassembled it just doesn't hang together. The subject matter has stood the test of time well, but the small, badly animated sprites on a tiny screen do not help. The sampled sounds are excellent, yet fit together to form a tune of truly astonishing artlessness.

The only saving grace, soundwise, is the inclusion of Delphine's funky saxophone on the high score sheet. When you offset this against the exceptionally dire sound effects, the sound's a bummer.

If you're after a Kick-the-Necromancer-in-the-Balrogs type game, Castle Warrior probably won't do anything for you. Mind you, after the rather astonishingly clever Bio Challenge, Delphine has set itself a hard act to follow.

Stewart C. Russell



What do you mean, I need an appointment?

AND THE LAST CRUSADE

Don't call him Junior



I've come to the end of my letter

some distance apart and not on top of each other, otherwise it is impossible to get past them.

One touch by anyone and you lose a life.

The final groan comes when Indy falls from the ropes over the water section – he doesn't sink beneath the waves, rather he falls in front of them off the screen. Sloppy programming or what?

Still, it is very difficult to get through the first third of level one without serious damage – stupidly hard in fact, when more rope play, knife throwers and fatal drops have to be considered.

Then you get outside, have to leap on to the back of a speeding train and avoid rhino horns, mad giraffes and the usual bad guys before you get to the end. And that was the first level.

The other levels are easier, with the simplest being the final one. There's more cavern play with rats to consider in level two, the Assault on Castle Brunwald. The castle is burning and you must climb up the wall to part three. The effect of the fire dropping from the stone ceiling is feeble.

The next level is slightly at odds with the film as it has you racing around the zeppelin, trying to escape by biplane. This bit was cut, so didn't make it into the cinema. There's a nice heaving effect where the screen slowly scrolls up and down to simulate the airship's movement, but really the graphics are very dull here – it's just a maze thrash with the guards in the way.

Only the climax of the game, the Get the Grail sequence, where a heartbeat representing Indy's dad slowly declines, captures any of the spirit of Indiana Jones. There's traps, a fair bit of leaping and a nasty buzzsaw to contend with.

Graphically, Indy and the Last Crusade is only adequate. The playing area is fairly small, the scrolling a bit jerky and only the animation of the characters worthy of note.

Speaking of note, the music and sound effects are awful. I wish someone had told the programmers that a good gun effect doesn't mean you don't have to bother with the rest of the game.

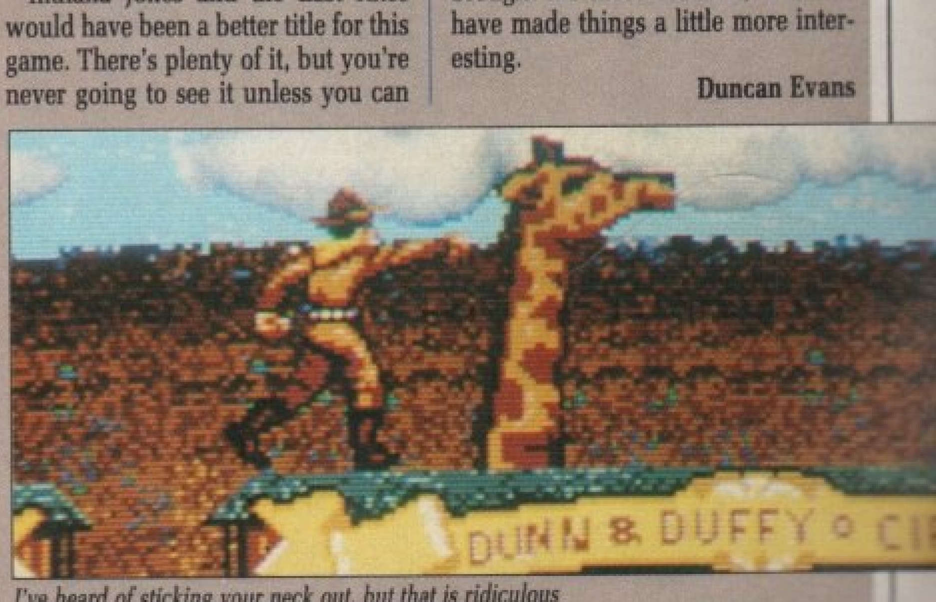
Indiana Jones and the Last Rites would have been a better title for this game. There's plenty of it, but you're never going to see it unless you can master the absurdly difficult first level. Sloppy programming adds to the misery. Maybe Indy should have brought his niece after all, it would have made things a little more interesting.

Duncan Evans

Indiana Jones and the Last Crusade
£19.99
US Gold

Sound	4/12
Graphics	8/12
Gameplay	6/12
Value	7/12

Overall – 49%



I've heard of sticking your neck out, but that is ridiculous

FIENDISH FREDDY'S

A splendid time i

HAVE you ever met a bailiff? They're the big men with very wide shoulders and little conversation. They do not wear clown make-up and silly shoes.

Freddy does. He has been sent by the bank to reclaim a $10,000 loan. If you can't pay him, your circus will become the foundations for a new property development. There is only one way to avoid this Rose Theatre fate – put on the deathest-defyingest, amazingest feat of circustry that the world has ever witnessed.

There are six events. Do well enough in all of them and the circus will earn enough from ticket sales to carry the show on.

Even from the lowest board of the high dive, the tub looks pretty small. On the way down you have to adopt a string of poses – emulating King Tut or meditating in the yoga position for instance.

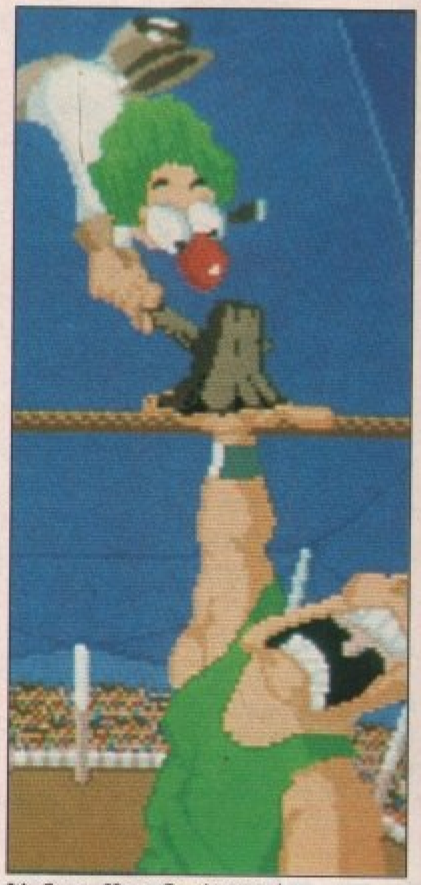
You fall straight, but in the tumbles between positions you drift off target. Frantic joystick waggling is the order of the day. As you move up the diving boards the targets get smaller. And they don't just *look* smaller – you end up diving into a teacup.

Freddy might appear at any moment armed with a fan to blow you away, but this is tame compared with his later antics. While you are unicycling and juggling Freddy distracts the seal – your ball-throwing assistant – with a fish. Then he adds some excitement of his own with a bomb. You must juggle it back out to survive.

On to the knife throwing, which has shades of Operation Wolf as you try to pop balloons without turning your female assistant into a kebab. Freddy will help by throwing bombs, which puts you off your aim.

My favourite event is the flying trapeze, not just because it stirs





It's Super Hang On time again

Gemini Wing	
£19.99	
Virgin Games	
Sound	▮▮▮▮▮▮▮▮▮▮▯▯▯▯▯
Graphics	▮▮▮▮▮▮▯▯▯▯▯▯▯▯▯
Gameplay	▮▮▮▮▮▮▮▯▯▯▯▯▯▯▯
Value	▮▮▮▮▮▮▮▯▯▯▯▯▯▯▯
Overall – 49%	

REVIEWERS' lives would be considerably more difficult – or less easy, depending on honesty – if all games didn't come with a wildly fanciful plot. I mean, "waves of marauding aliens" sounds far better than "a row of four blitter-objects", doesn't it?

And in this department, Gemini Wing is no exception. Especially when you can manage to use two of game reviewing's worst cliches in the one (preceding) sentence.

The humour in the tale behind the game is rather like early rhubarb – forced. It would seem that Earthpeople have become a little too xenophobic, and the rest of the universe's sentient beings have decided to teach us a lesson.

But of course there's the secret ship which can show those slimy bug-eyes what for, and you are piloting it. Channel Z, or what? Possibly even Dullsville, South Dakota.

After playing Silkworn you are probably waiting for another amazing, slick and playable arcade conversion from Virgin. Well you can carry on waiting for Ninja Warriors. This wasn't programmed by Randon Access, and it shows.

The format of the game is one you've definitely seen before. You are a small ship facing up a downwards scrolling landscape. Things come down the screen towards you, wobble a bit, perhaps shoot at you or drop something, and then are shot or disappear.

After a certain length of backdrop has scrolled by the small things vanish, to be replaced by one or two large things, which try to shoot you a lot, and then they get shot, or you get shot.

That just about wraps up this paradigm of plainness (thank you, Dr



Y'S BIG TOP O' FUN

ime is guaranteed for all

memories of Pitfall but because I find it quite easy. Match the swing of the next trapeze with the one your girl is on, and shout like tarzan as you press Fire. Later on you get to jump at flaming hoops.

Switching back to the hunky male character, the tightrope would be quite straightforward – advance by pressing forward on the joystick, correct a wobble with left and right – if it weren't for Freddy. He'll cut you in two by throwing a disc in much the same way as Odd Job did in Goldfinger.

You can protect yourself with the balancing pole, but staying on the wire afterwards is a trifle tough.

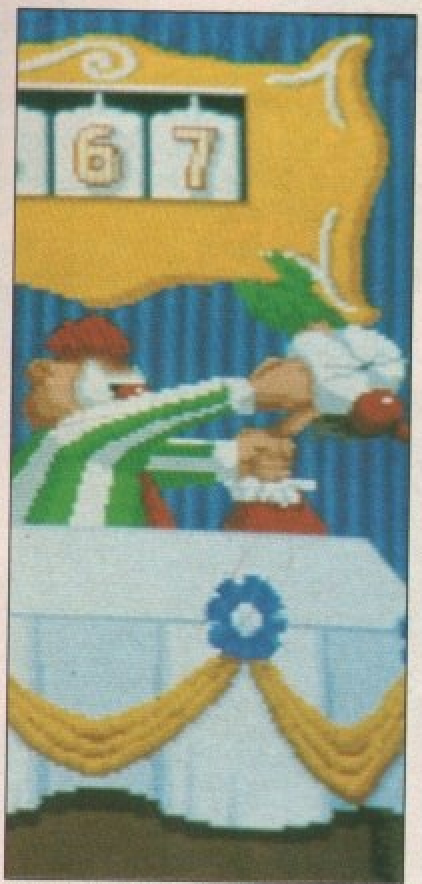
The grand finale is the human cannonball. The bimbo smiles as you brace yourself. She carries on smiling as she fills the cannon with powder. The spotlight is reflected in her toothy grin as you climb on the barrel.

Then when Freddy appears and plugs the gun with a cork does she grimace? Does she look worried as the whole lot explodes? Not a bit of it, she just keeps up her tabloid pose. I think I'm in love.

Targeting the gun is more fun than A level physics. You have to move the net and balance the trajectory against the amount of powder. I wrote a program like this years ago. Sold five copies.

For each round you are given a score. This comes in the best possible form: Money. You use the cash to pay off the bank and hopefully win the game. How much you win depends on a judging panel composed of slapstick clowns.

Throughout the game the graphics are superb. Not just for the jaunty way they are drawn but for the cartoonist's tricks – like motion blur and rubber people – which makes watching as much fun as playing. New twists, the hysterical clowns and the sense of achievement when you complete a level, put you in the party mood. Invite some friends around and use the five player option!



Knowwhat I mean, harry?

Fiendish Freddy's Big Top O Fun
£29.95
Mindscape

Sound
Graphics
Gameplay
Value

Overall – 77%

If there is a flaw, it is in the juggling. Not the round in which Freddy hands you a bomb, but the juggling between the three game discs. You soon get fed up having to remove the "Amazing Disc A" and replace the "Death-Defying Disc C" just so that some clowns can laugh at you. This is a symptom of the huge quantity of graphics the game uses. It is also boring.

But Fiendish Freddy really is very, very funny to watch and play. I'd recommend it to anyone with young children.

Simon Rockman

GEMINI WING

Death is an expensive business

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Roget, wherever you are) but for a few small details. There can be two players simultaneously. Like, serious innovation, or what? Instead of the little capsules giving extra powers, they give one-shot superweapons. Am I getting old, or is the term smartbomb getting a little out of date?

Gemini Wing does have some new, innovative ideas, though. Having all the capsules you've collected trailing behind you is a bit one-careful owner in the car showroom that is computer gaming. Having them open to be nicked by the other player is a new idea, and can generate almost as much animosity as a Treasure Room with "Shots Now Stun" in Gauntlet.

Also, this game doesn't have the usual complement of bangs, pows, thwacks and zonks that every other mediocre shoot-'em-up has – it boasts a wide variety of rather clever tunes, but no real noise. Don't know about you, but to me, a shoot-'em-up without noise is like... is like... is like something without something else pretty vital, at any rate.

At least the tunes are adequate, with an especially nice line in electro mock-Tudor on the highscore sheet. The first level's tune bears an uncanny resemblance to the first level tune from Space Harrier, so there could be a Sound-and-Feel case in it for Sega.

Most of the graphics suffer from being rather small, being frequently made up from units of two low-res pixels, which pushes them into the really quite exceptional (for an Amstrad CPC) league. There are times when there are so many ground emplacements and circling aliens that there isn't time to loose a smart bomb, so a rather frustrating death ensues.

Gemini Wing has a similar, though greatly inferior, feel to Mission Genocide, a rather ancient 8 bit budget game. Where Mission Genocide squeezed every last ounce of speed from the Z80 machine to get an extended screen scroll, Gemini Wing seems to be barely ticking over on its tiny scrolling window. And as Gemini Wing is over 10 times the price, it's not worth the bother. You've seen all this before. With better presentation, sad to say.

Stewart C. Russell



JOURNEY

Pointing the way ahead

Journey	
£24.99	
Infocom	
Sound	
Graphics	
Gameplay	
Value	
Overall – 78%	

EVIL was abroad and the land was suffering. The crops had failed three years in a row, then the water had become foul. Many people moved away to the north in the hope of escaping the pestilence, but to no avail.

It was decided to seek the help of a wizard, so a party of four departed. They were never seen again. The situation is getting more desperate, so another party must go in search of a solution.

You play the part of Tag, the apprentice food merchant who has been chosen to accompany Bergon the carpenter, Praxis the wizard and Esher the physician on a journey to discover what is happening to the land. Hopefully they will be able to put things right again.



Journey is the story of their travels and their encounters with elves, trolls, dwarves, nymphs, wizards and many other strange creatures.

The aim of the first part of the adventure is to reach the castle of the wizard Astrix. Here you will learn of the amulets of power which need to be collected and returned to Astrix so that he can battle with the Dark Lord and free the land.

Playing Journey is like taking part in a book. Decisions that you make from time to time lead the story in different directions. Along the way there are many problems to solve, decisions about what direction to take and how best to fight enemies without getting yourself or your companions killed.

The story can proceed in many different ways and has many endings, but only one is correct. Can you make the right decisions or will your party meet the same fate as your predecessors?

You are presented with a screen which is split into three parts. One displays a picture of the current scene and another the story text. At the bottom is a list of currently available commands. Click the mouse on one to execute it.

The pictures, drawn by artist Donald Langosy, are very pretty but do not seem to offer any clues. They appear to be just so much window dressing. The story, written by Marc Blank who co-authored the original mainframe version of Zork, is quite an interesting read in its own right. The game is entirely mouse driven so there is no need to type a single word, although you can use the keyboard if you wish.

Packaging is, as always with Infocom games, very good. There is a map which is needed to complete the game and a little bag containing a strange crystalline object – its purpose remains obscure, but I think it is something to do with magic.

As the packaging is essential to complete the game, it means the disc can be left unprotected for easy backups or transfer to a hard drive.

If you do not like reading much, then you probably will not like Journey. On the other hand, if you like settling down with a good book and would love to be able influence events in the story, this style of adventure will suit you down to the ground.

Alex Aird



It's my party and I'll cry if I want to



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POPULOUS – THE PROMISE

Let there be more light

BEING a God can get you down sometimes. I mean it's all very well all that terraforming and being fervently adored by the thronging multitudes, but let me level with you – all this omnipotence gets a bit boring.

Staring down at the same little faces, flooding the same castles, accepting the same burnt sacrifices of the opposing religion's supporters. Sigh. Makes you wonder if it was all worthwhile in the first place.

Well fear not. If your creation is getting to be a drag, why don't you create some more? Or, if you're not feeling up to the task, those nice people at Electronic Arts have some they have prepared earlier – no sticky back plastic or previous experience required.

The original Populous was excellent. It is still riding high in the charts and has become the best selling game on the Amiga. Now comes the follow up, a disc containing five new maps. That is, five more environmental overlays for the original system.

Ever since the two 16 bit machines became competitively priced rivals there has been bitterness and hatred between the two camps. Abuse has been hurled, families which once nurtured peace and understanding have broken up into heavily-armed factions. Even some magazines have split over their format differences.

There have been no terrorist attacks or hostage scenes yet, but it can only be a matter of time. Now you can decide it forever.

The Programmer map comes with two bands of merry men, Commodore supporters (hurrah!) and Atari freaks (Boo!). Both fight it out on a listing paper landscape, strewn with coffee cups, fag ends and other typical programming detritus.

Straighten out the listings and build Spectrums for your supporters. (Well, everyone has to start somewhere.) Scribble code to boost your numbers or launch a sneak attack with a floppy disc volcano. Take no quarter, careless swamps cost lives, Uncle Commodore needs YOU... Sorry, sometimes I get carried away.

But I always escape and come back again.

Moving on rather quickly we come to the Wild West scenario. Nice to see EA cast the Red Indians as the good guys. The world wouldn't be in the state it is now if they were still in charge over there. Mind you, everyone's Amigas would be made of wood and buckskin.

No herds of buffalo sweeping majestically through the plains here, just desert, teepees and cactii. Watch out or the baddies will send a sheriff to decrease your numbers. I suppose that's a sort of Indian takeaway...

The nostalgic of you may like to return to tools you used to build your first universe. In Legoland, er, I mean Blockland, everything is made out of little blocks, including the houses, the trees and the people.

Discarded wheels hinder your cultivation plans while waves of decidedly uninviting green sea, which looks like it's composed of several thousand plastic blocks preheated at gas mark 7, lap against the blocky shores.

Sillyland is. Very. The land is silly, the people are silly and the houses... Well, you wouldn't credit it really.

Finally there is a kind of French flavour to the last map. No I don't mean lots of garlic and snails. I mean a rather topical, or perhaps typical, due to media saturation, reference to the French Revolution. Pull on your stripey T shirts and wheel out the guillotine, or heads are going to roll.

All the terrains have their particular characteristics reflected in the behaviour of the followers – they die quicker in deserts, breed slower in the cold, and so on.

Overall this makes an excellent addition to Populous. What d'you mean you don't have Populous? I don't know, sometimes I despair of Godkind. Now where's that earthquake icon, that ought to bring the faithful to their knees...

Green

Populous – The Promised Lands
£9.99
Electronic Arts

Sound	▮▮▮▮▮▮▮▮▮▮▮▯▯▯
Graphics	▮▮▮▮▮▮▮▮▮▮▮▮▮▯
Gameplay	▮▮▮▮▮▮▮▮▮▮▮▮▮▯
Value	▮▮▮▮▮▮▮▮▮▮▮▮▮▮

Overall – 92%

Back in May we managed to underrate Populous somewhat. You lot voted with your pockets and proved us wrong. We therefore throw ourselves on your mercy and retrospectively award Electronic Arts and Populous an Excellence gong.





Land of the Blockheads



White man point with folked mouth

SE...AND





...mouth



...getting silly

NIGHTDAWN

It's only a game – isn't it?

THIS makes a change. Normally such games come with a 20 page novella detailing the plot, including references to distant star systems, beautiful heroes and brave princesses. In NightDawn we are made quite clear on the point that this is only a game. Glad to see someone has their priorities right.

The lack of a meaningless plot also prevents reviewers from spending the first couple of paragraphs getting paid for the privilege of repeating it while trying to keep a straight face. Instead they must think of a snappy opening sentence by themselves, such as "This makes a change".

Your objective? Well, whoever wrote the instructions couldn't think of one of those either. It must be to get to the next level. I suppose. After all, it is only a game.

So you are given a sprite in the shape of a tank to try and do just that.

In case you are having problems, the instructions explain that you push the joystick away from you to go north, towards you for south and left and right for west and east respectively. Whoever wrote this 10 page classic has all the imagination befitting a Neighbours script-writer.

So enough of the badinage, what is the game like? A quick whirr from the disc drive and it loads with an almost instant tune. Then the customary irrelevant loading screen appears and it's time to play.

Each of the 10 levels is a large floating platform constructed of those little tiles that computer graphics designers love so much. Said tiles float over another colourful playfield and when you drive your tank – sorry, robot – everything scrolls in four directions with an eye-curdling parallax effect.

The tiles make up the form of a maze, and you can only get to the exit by opening doors with keys scattered over the entire platform. Various laser fences and moving floorways must also be turned off by finding the correct switches scattered around the place.

Falling off the platform, running into a mine or being hit by alien fire will lose you one of the six lives you are given at the start of each level. Reminds me of Captain Fizz a bit, come to think of it.

The ubiquitous add-ons are available in the form of lasers, mine detectors and compass devices to help you find the exit. The detector is essential to discover the hidden mines, which have been planted just where you least expect them. And just when you think you have discovered them all, a lawnmower – sorry, robot – will drive around and plant some more.

What must be the best baddie seen in a long time is the wonderfully named "airbomb ejaculator". Don't you just love it when instructions are translated from German?

Although hardly frightening in appearance, the ejaculators launch flying bombs which circle you, spiralling closer and closer until either you kill them prematurely or they crash into you. All the time they make strange whooping noises like two small furry aliens from Alpha Centurii getting to know each other very well...

The title music is very good and seems to go on forever. There is even a funky slap bass sample in there somewhere, which has been programmed to bend in just the right way. Top marks for sonics.

NightDawn
£24.99
Magic Bytes

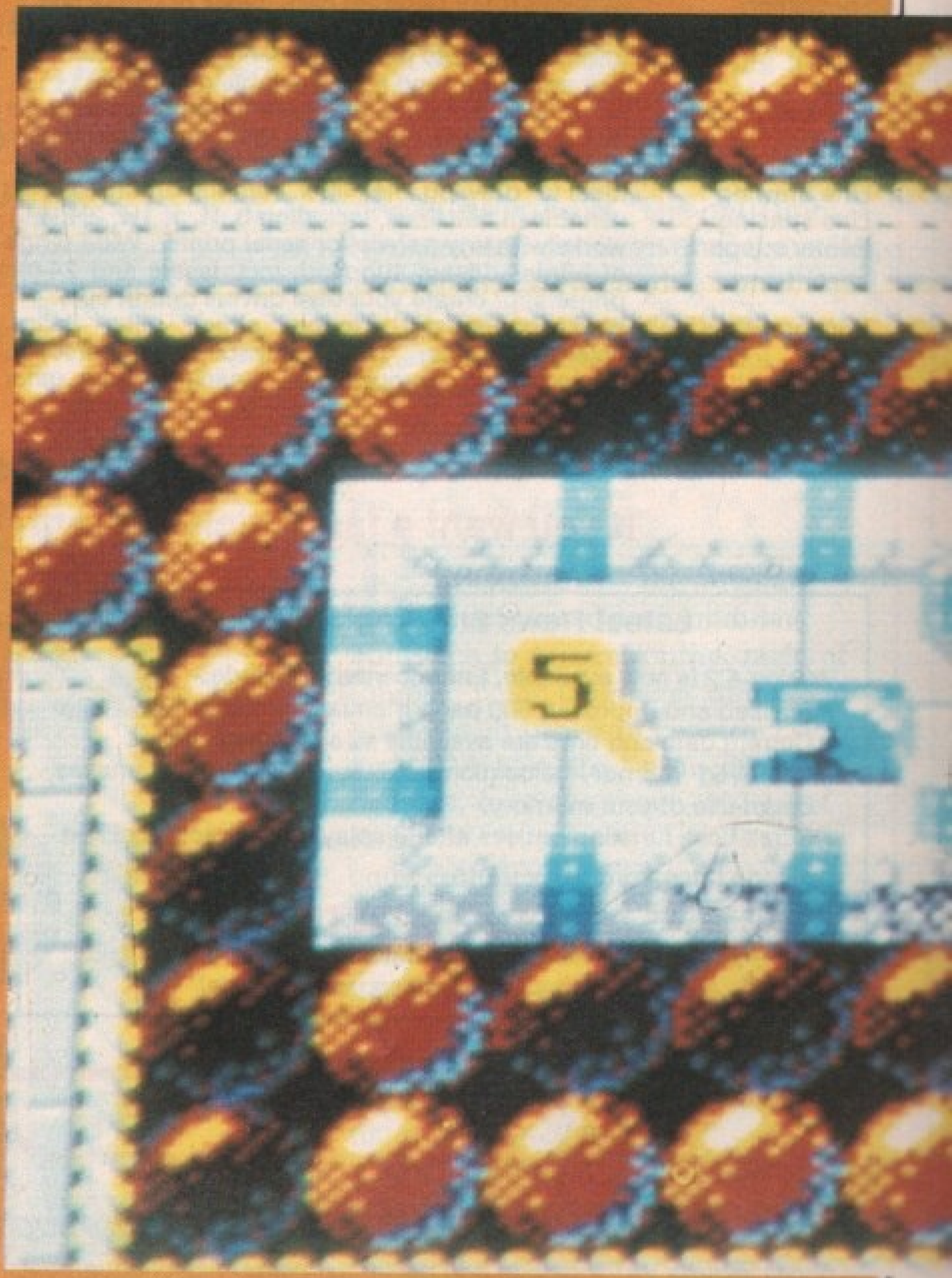
Sound
Graphics
Gameplay
Value

Overall – 83%

Spot effects during the game are also excellent – doors open with opening- door type noises and aliens exploding with exploding-alien type noises. Who could ask for more?

Although you will be attacked by gun emplacements and those flying bonking-bombs, NightDawn does not have enough action to merit the classification of arcade game. It will appeal to those who like exploring and solving problems. However, the lack of any significant difference between levels will cause interest to pall.

John Kennedy



Build a better Basic

A look at modular programming – now there's a term to stop any social intercourse dead in its tracks. John Kennedy explains

PICTURE the scene: A nice party, good food, a drink or two, some wonderful people, interesting conversation, then suddenly the phrase "I'm a great believer in modular programming myself" drifts across the room.

Everything stops. Silence. Eyes turn and fix themselves on the balding and bespectacled person in the corner, who suddenly remembers that he has to check up on the babysitter and leaves with a red face.

Nobody likes talking about modular programming. It brings to mind all sorts of terrible practices such as flow charting and even – heaven forbid – the writing out *in advance* of a program's functions.

Design a program in advance? Can't be done. Shouldn't be done. Won't be done. Go away and leave me alone. I'm just going to type in a program now. I'm not sure what it's going to be about, but I'm sure it will work. Probably.

If this is your response to a programming methodology, well that's fine. You go right on ahead and make up your programs on the spur of the moment. I, on the other hand, will stick to my structured method and scribble a few ideas on a piece of paper.

Both programs might work, but my program will be written quicker, be written better with fewer bugs and will be understandable when I look at it again next month.

"So when are you going to do some Basic?" I hear you cry. Well actually I don't hear you cry that at all. It would be very hard to hear you cry, because I'm sure we are several hundred miles apart. Why should you cry anyway? Is all this talk of modular programming getting to much for you? In all probability you didn't say anything. I mean, if you are reading this magazine in the newsagents, then saying: "So when are you going to do some Basic?" would quite justly get you some funny looks.

In fact my saying that you *did* cry something was just a cunning trick that we are all taught at Computer Magazine Article Writers School. It is supposed to be slightly amusing and make you think everything is happening on an easy-going, informal footing. Which, of course, everything is. Because everyone here at *Amiga Computing* is really laid back and totally cool.

I myself am in a really mellow mood. Even Green – who is writing some game reviews in the room across the hall at this very moment – is operating on a higher intellectual plane brought about by some very dodgy mushroom yoghurt which we found in the local supermarket.

Another equally valid reason for pretending to hear you cry things is that it uses up space which would otherwise have to be filled with carefully researched and finely crafted instructional prose.

At the moment I'm revising for my rather important exams, which means that I just don't have the time for major literary and programming mega-masterpieces. The only thing I do have time for is visiting the college library and daydreaming about a girl called Carol who works there.

Carol is very pretty and not interested in me, so I'm sure you can see my dilemma. But enough of my problems, let's look at some Basic.

RECOGNISING the advantages of a structured and modular approach to programming, most of the post-Basic languages offer some kind of sub-program construct. Pascal and ADA have the "procedure" concept, even the much-maligned Forth is written using modules of code contained in "words".

No self-respecting language can afford to be without some sort of modularisation these days. Microsoft was not so proud as to avoid borrowing some of these ideas from other languages and incorporating them into AmigaBasic.

A sub-program must satisfy several criteria before it can be classed a ►

◄

useful construct. First, you must be allowed to pass and receive variables to and from it in the form of parameters. You must also be allowed to have local variables.

Local variables only exist inside the sub-program. Nothing the external program can do – including defining some variables of the same name – can be allowed to interfere with the values of the local variables and vice-versa.

The use of such variables keeps bugs to a minimum by ensuring important values can only be changed at specific points in a program. Using local variables means it would be impossible to change the value of a variable by mistake at some obscure point in a program and then spend hours trying to trace the errors back.

THE opposite of a local variable is a global one. This can have its value changed at any point in a program. Most variables used in Basic are of the global type, which explains why Basic programs are difficult to debug.

Luckily all these exciting possibilities are possible from within AmigaBasic. An added bonus of using sub-programs instead of, say, sub-routines – code which is accessed via GOSUB – is that it is impossible to execute them by mistake. The sub-program can only be called by name: There is no danger of the flow of your Basic program accidentally drifting into a sub-program because you left a RETURN statement out.

Look at Figure I, which demonstrates the syntax of defining a sub-program. It starts with the word SUB and ends with END SUB. Nothing really complicated there. Where things do get a mite tricky is the syntax needed to pass variables into and out of the sub-program. There are two extra words to control this parameter passing: STATIC and SHARED.

The word STATIC always appears in the sub-program's heading. It is really only a reminder about the variables listed between it and the word SUB – *variable1* and *variable2* in our example. All the variables within this space cannot be altered by the rest of the program. Outside the sub-program, their values remain static.

The word SHARED is optional. Any variables listed after this keyword may be changed by the outside program – like *variable3* in the example. The variables are shared between the program and the sub-program. They are, in effect, global variables.

The variables passed can be of any type, even entire arrays. To pass an array you put empty brackets after it in the CALL statement, and brackets containing the size of the array in the sub-program header. Like so:

```
CALL TestArray Name$()

SUB TestArray Name$(10) STATIC
' Do some stuff.
END SUB
```

"What about local variables?" I don't pretend to hear you cry. Well, any variables that are defined and used within the sub-program are automatically taken to be local. Nothing they do will affect other variables in the main program – for example, *variable4* in Figure I. If you want them to be changed by the rest of the program, they must be defined with the SHARED variables.

```
SUB variable1,variable2 STATIC

SHARED variable3

variable4 = 465284

REM Part of the sub-program where
REM all the hard work is done.

END SUB
```

Figure I

Whenever END SUB is reached the sub-program will stop as though it were a normal sub-routine reaching a RETURN statement. If you wish to leave the sub-program early you can escape from it by using EXIT SUB at any point.

There are some special rules that apply to sub-programs. First, you must not use CLEAR, user-defined functions or that funny word COMMON, which is used to pass variables to MERGED and CHAINED programs. You are also forbidden to define another sub-program within the first.

Remember also that sub-programs cannot be recursive, that is they cannot call themselves, or by calling another sub-program indirectly call themselves again. Green says this is silly because recursion is exactly what sub-programs and procedures were created for. I tend to agree. But recursion is a tricky programming technique to use and leaving it out of AmigaBasic avoids a lot of problems.

OUR main program this month will be one from which Green and I have derived many hours of pleasure. It is called Insult! and allows you to slag off a friend from a distance. The distance depends on the length of the null modem cable you have connected between the serial ports of two Amigas which are both running the program. It can be up to 20 metres – or even further with a

►

```
'
' The Insult! Program by John Kennedy.
' (With help from Green).
'
' Only works with two Amigas linked via
the
' Serial ports using a null modem cable.

number=0:text$=""
CALL Initialise

WHILE text$<>"STOP"
  IF num=1 THEN CALL Rec.msg(text$)
  IF num=2 THEN CALL Send.msg(text$)
  IF num=1 THEN num=2 ELSE num=1
WEND

PRINT
PRINT "Program stopped."
PRINT "Go and make friends again."

SUB Initialise STATIC
SHARED num
  OPEN "COM1:9600,n,8,1" AS 1
  CLS:PRINT "Welcome to INSULT":PRINT
  INPUT "Are you number 1 or 2?",num
END SUB

SUB Send.msg (message$) STATIC
  LINE INPUT "Insult? ",a$
  PRINT #1,a$
END SUB

SUB Rec.msg (message$) STATIC
  LINE INPUT #1,message$
  PRINT "Insult:";message$
  CALL Pronounce.msg (message$)
END SUB

SUB Pronounce.msg (message$) STATIC
  word$=TRANSLATE$(message$)
  SAY word$
END SUB
```

Figure I

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rather expensive cable.

The cheapest way to get a suitable cable is to buy two 25-way female D connectors and a long length of five-way wire. (The wire used to connect telephones is six-way and not very expensive.) Then connect pin 1 on each socket together, pin 2 of one socket to pin 3 of the other and vice-versa. Then do the same cross-over with pins 4 and 5.

Using this cable will allow you to link two Amigas together for two player games such as Falcon or Populous or for data communication using a comms package.

When the program is running on both machines – expect to be asked to insert your Workbench disc – you must decide who is player number 1 and who is player number 2. We do this by having a fight: The loser is player number 2, who must also do the washing up for a week.

Player number 1 can then type his insult into the computer. The insult will be transformed into serial data, sent along the wire and be received by the other player's Amiga using the built-in speech synthesiser.

The technical details of inter-Amiga communications are not really the topic under discussion here, but merit at least a passing mention. The Amiga provides easy access to its serial and parallel ports to the Basic programmer. By OPENing a "stream" at the start of the program, data may be sent or received using simple INPUT and PRINT statements.

THESE streams are very flexible and refer to either a file on disc, in memory or an external output device. The serial port is such a device, and by connecting two Amigas using this port we can have a fast and easy-to-use computer network.

All the hard work is done by the OPEN statement, which specifies the device to send and get data to and from – in this case COM1: – and the baud rate (speed) and other little niggling details. All we have to do is to remember to add a # (pronounced hash) and a stream number to any PRINTs or INPUTs.

The Insult! program is constructed using a veritable plethora of sub-programs, which split it up into individual fruit pies, er, program modules. Each module performs a single task such as sending, receiving or saying a message. The message itself is passed as a STATIC variable between the sub-programs.

Some local variables are also generated, such as *word$* in the *Pronounce.msg* sub-program. There are no shared variables, because none were needed.

The use of sub-programs in Basic is a large step forward. It allows you to construct a library of programs ready for instant use. You don't have to remember how they work, only the inputs and outputs of each one. You could even use other people's sub-programs in your own programs.

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What you'll find on our cover disc



Chariots of Wrath



WHILE fighting for your king in far off lands, you, Prince Agar of the Forgotten Kingdom, have been commanded to remain in the king's castle following accusations of excessive acts of barbarism in battle.

Confined to your quarters, a bard tells you that the baron, your arch rival, has kidnapped Princess Arthena, your future queen.

Enraged by the terrible news, you have no option but to disobey your king. You must return to save your princess, and at the same time rid the world of the baron. So once again you wearily climb into your space chariot and commence the voyage home.

Half way to the Baron's castle you come to a land of giant carniverous insects. Swarming red and green ladybirds, shiny beetles marching relentlessly forward, all out to stop you reaching Princess Arthena.

Can you beat off the attacks and win through to fight the giant green beetle at the end of the forest? Course you can, because programmer Glenn Williams has given you infinite lives. And you're going to need them. Go get them insects!

The Chariots of Wrath demo uses every spare byte a vanilla A500 has to offer. If you have problems loading it – for instance if it loads for a while and then the screen goes weird – simply remove the cover disc from the drive, switch off your machine, make sure all external devices, like second floppies, are unplugged, throw some salt over your shoulder, and reboot.



The one on the left is harmless but matey above will lay eggs all over you if you don't watch out

COVER DISC ✓ COVER DISC ✓ COVE

Globe



BECAUSE the world is round, some countries look bigger and more important than others which have larger land masses. This is an illusion we have become used to with the flat maps of the world that we usually see.

Open your filofax *(Spot the yuppie. Ed)* to the map of the world and compare Greenland to India. You'll see that while Greenland occupies 840,000 square miles it looks much bigger than India's 1,269,213 square miles.

To put everything into perspective and get a real feel of how big the world is, you need a globe. And John Kennedy's equivalent of the Total Perspective Vortex does that.

By storing its coordinates in terms of latitude and longitude, all the countries of the world are shown fairly. Yet again *Amiga Computing* rights some of the world's injustices.

Obviously, with only a limited number of points, the map isn't 100 per cent accurate, but then no map ever is.

The program was written in AmigaBasic and compiled using the HiSoft Basic Compiler. It is a fine example of how good software which follows the rules of Amiga programming can be written in Basic.

When you run the program you should select Draw Globe from the Project menu. This will show how the globe is set up as a default.

To zoom in, select Change Settings from the Settings menu and use a number bigger than 1 for the magnification. A sensible maximum is 10 for a crinkly bit like Europe and 5 for boring places like Australia.

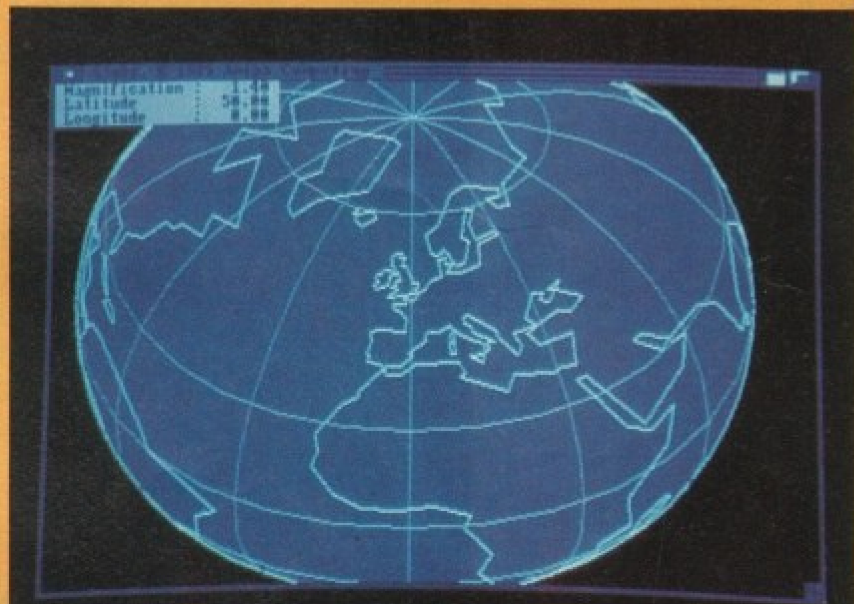
Each time you change the settings you need to use the Draw Globe option to see the effect. You can use decimal places for fine tuning. Check out the bug in the input routine. Enter a negative number. Or a huge one like 10e27. Sigh.

You can make the world go round by altering the latitude and longitude. Spin the world on its axis by changing the latitude for any value between -180 and +180. Or trip from pole to pole with values from +90 to -90.

You really will have the whole world in your hands.

Globe was sent to us by John Kennedy, a 22-year-old student from Bangor, Northern Ireland, who is into his fourth year of Information Technology at Queens, Belfast. John has an A500, 512k of extra memory, two floppies and a giant 26in colour monitor from Canada.

His ambition is to play Elite in a life-sized replica of a Cobra Mk3, with docking computer. Dream on, John. And let's have some error-checking next time.



Globe defaults on Brentwood, the centre of the known universe

DiskOpti

THE most infuriating thing about the Amiga is the disc drive. What is the point of having a built in floppy when it still takes an age to load?

Part of the problem is the way in which the Amiga accesses the disc. Because it is random access it means that, unlike a more conventional tape drive, files do not have to follow one after the other. They can start anywhere on the disc.

In fact each block of data can be stored on any block on the disc, with the relevant information as to where to find the next block.

This all makes for efficient use of disc space, but when it comes to read in all that information the head has to travel backwards and forwards over all the place looking for the information.

You may have noticed sometimes your drive light is on, but the disc is not being accessed (there is no grinding noise). These are the "wasted" periods of moving the head.

Until Workbench 1.4 arrives with the FFS system for floppies, the next best thing is DiskOpti. This shareware utility will rearrange files on disc to appear in order and as close together as possible, minimising the search time for blocks of data.

The program works wi two drives. A commerci disc optimiser, BAD, on needs one, but if your syste crashes in the middle writing to the disc, wi DiskOpti you still have t original.

The program runs fro Workbench. Double click the DiskOpti icon in th Utilities drawer. Holdir down the right mouse butto will reveal two simp menus.

Let's go for a trial ru Suppose you have tw drives, DF0: and DF1:. Ju pop the original disc in DF and a blank in DF1:, sele





A500, , two 26in nada. play ica of cking John. error-

KillFastMem

SOME programs don't like expanded memory. When software is loaded into the Amiga the operating system automatically relocates the program according to the amount of memory available. This confuses some badly written programs which think they know where they have loaded.

The usual solution is to turn over your Amiga, open the trap-door and remove the ram pack. This is a pain.

As ever, some enterprising programmers have come up with a solution. Cesare Dieni and Carlo Borreo from Italy have written a shareware program which switches off the extra fast memory if you run it.

When the computer reboots after a Ctrl–Amiga–Amiga it will think it only has 512k available. To get the full quota of memory back you have to switch off the computer and wait a few of seconds before switching back on again.

If you want to copy the utility to another disc you will have to transfer three files from the Utilities directory: KillFastMem, KillFastMem.info and KillFast. This is because the file KillFastMem is a script file for IconX, which runs KillFast. Use the Copy command from CLI; dragging the bunny rabbit icon to another disc will not work.



s with nercial , only system dle of , with ve the s from lick on in the olding button simple l run. two :. Just n DF0: select

df0 -> df1 from the Optimum menu and let DiskOpti get on with it. Obviously the time taken to optimise a disc will depend on how fragmented it was to begin with.

Another feature is the ability to give a listing to the printer or file of all the track details.

This gives comprehensive information on all the blocks on the disc, details which can be used before and after optimisation so you can get a good idea of just what DiskOpti has done.

Full details are given in DiskOpti.doc.

PowerPacker

REMEMBER when 64k seemed a lot? Now a megabyte feels more like a meagrebyte. Even 880k discs aren't big enough to store everything you want to keep together. What you need is a way to make your programs smaller. What you need is a PowerPacker.

Franois Nico has written a shareware program which squashes other programs. PowerPacker looks for bits of the file which are the same, and instead of duplicating the code remembers to look for that bit again when the program loads.

How carefully it looks for matches affects how tightly the program can be packed. The tighter the packing, the longer it takes to compress.

The result is a compressed program which can be run just like the original. It decompresses itself when you run it. This uses a clever bit of the program which attaches itself to the start of the file.

The decompression takes a moment or two. It also needs memory in which to store the compressed program, and more memory in which to store the program as the data is decompressed. This means that big programs cannot be decompressed on a half meg machine.

Running all the way through the code comparing bytes takes a while, so you need to be prepared to wait. To stop you thinking that the whole system has crashed when you load the program, there are a number of telltale signs which indicate the thing is decompressing.

Either the whole screen flashes as a rainbow stripe runs through the display, or the pointer flashes, or the whole screen wiggles.



Holding down both mouse buttons aborts the crunch

This is set up by using an option when the program is crunched, and can be switched off altogether.

Because floppy discs are so slow it is often quicker to load a crunched program and decompress it than it is to wait for the original to load.

The program comes with an excellent documentation file – double click on PowerPacker.doc to read it. However if you want to get going straight away here are some simple instructions showing how to crunch AmigaBasic from the Workbench 1.3 enhancer pack.

Boot up from the cover disc. Select the Workbench startup. Double click on the lightbulb icon to open the Utilities drawer.

Find the PowerPacker icon – the one with a hammer – and double click on it. When the program has loaded and de-crunched itself, go to the Project menu and select

Load. This will produce a directory of the cover disc.

Don't worry, just wait for it to finish. Swap the cover disc with your copy of Extras. You are using a backup, aren't you? Click on the DF0: gadget and PowerPacker will read the directory from the correct disc.

Find AmigaBasic in the directory entry. You don't have to wait for the whole list to load, PowerPacker is very intelligent and doesn't force you to wait.

Click on the line which says AmigaBasic and then on OK. PowerPacker does the rest. It will suck in the file and start crunching.

The program will multitask, so you could run another Workbench program. But PowerPacker uses a lot of memory and processor time, so it is probably best to go off and make a cup of tea or read a few games reviews, depending on whether you want nourishment for the body or soul.

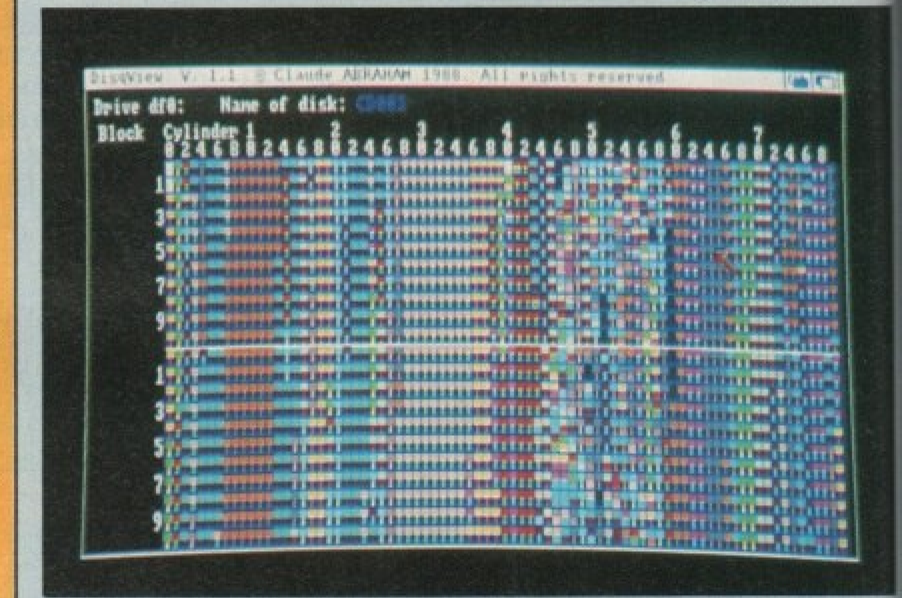
When you get back you will find that Powerpacker is still working on the file; it counts up, showing how far it has got. When the crunch is finished (about seven minutes) it will display how effective the operation was:

```
100% crunched
Done.
Original length: 103500
Crunched length: 72148
(72720)
Gained 31% (31352) !
```

Save AmigaBasic back to the copy of Extras disc. The program will ask you if you are sure you want to overwrite the old one. Quit PowerPacker. The Extras disc which was full now has 63 blocks free, which is enough room to save a couple of short Basic programs.

Powerpacker really does give you something for nothing.

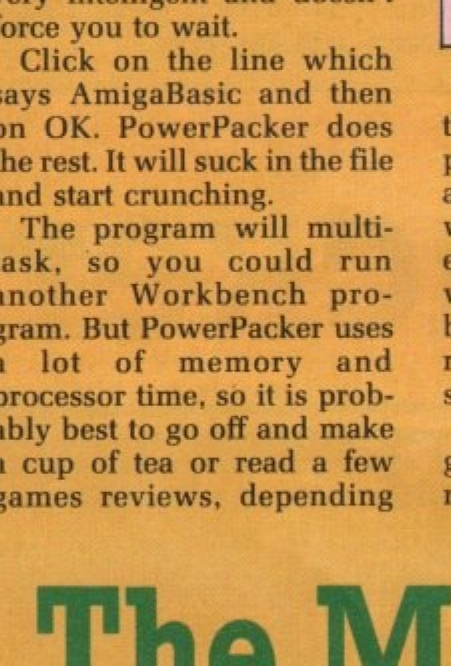
DiskView



ONE of the nice things about this shareware program is that it is not only useful but is also very pretty to look at. The whole objective of the program is to give a visual representation of where data is stored on a disc.

The information is displayed on a large grid with sectors and sides on the ver-

The Motion Maker



Motion Maker author Andrew McGough

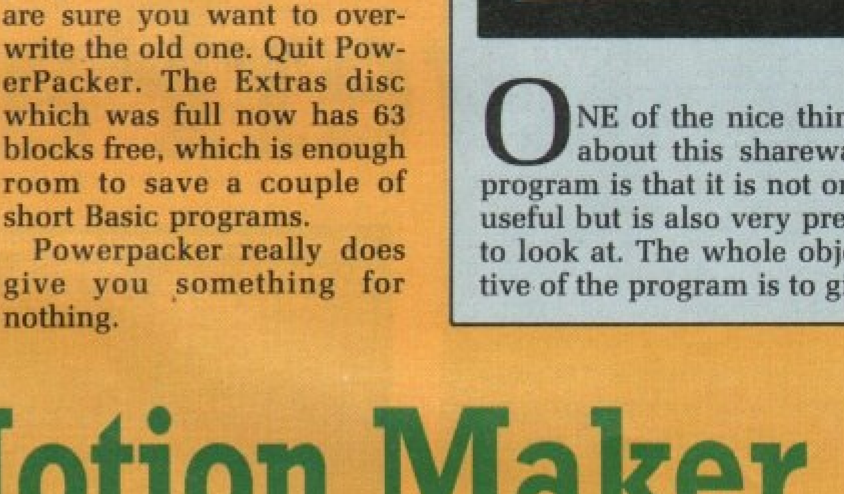
WOULDN'T it be great if you could create a smooth animation by drawing only two pictures – by sketching what you want the animation to look like at the start and the finish of a sequence, then asking a computer to draw the bits in between?

It's called tweening. Zoetrope does it. So does DPaint III. Sort of. But neither will do transformations. You can't turn squares into triangles. With The Motion Maker you can.

Let's get going with a simple example. Boot up the program by double clicking on the Motion icon in the Reader-Contributions/The-Motion-Maker drawer.

You'll see a black screen with seven gadgets down the left, five of which have writing next to them. This is the menu system.

Click once on Lines Menu and four new gadgets will appear. Click New Line. The screen will go blank. Move the pointer to somewhere top left and hold down the left mouse button. Now drag a line down and to the right – a couple of inches will do – and release the mouse





tical axis and tracks, known in Amiga circles as cylinders, on the horizontal.

The small size of each individual square means you can view the entire disc at once, something not possible with most other disc information systems.

Start the utility by clicking on its icon. The screen will blank and the grid will appear along with some general information at the bottom of the screen. Hold down the right mouse button and select All from the Project menu. Now go to the Drive menu and select DF0:.

The program will access the drive and three white squares will appear in the grid. These are the squares that are reserved by AmigaDos for keeping the disc information on and booting.

Click on the single white square standing on its own at cylinder 40 sector 0. This is the *root block*, which contains the structural information of the disc – where all the file headers are, and stuff like that.

The disc will be accessed again and after a short while the rectangles of the grid will begin to fill with tiny colour-coded squares, two squares to each grid position.

The header blocks, the first in a sequence of blocks, will be solid and either one or two colours. The data blocks associated with these headers will appear in the same colour scheme as the header, but the lower half of the rectangle will be a short vertical line instead of a solid block of colour. Sounds complicated, but it looks impressive.

To view a particular file select Project:Erase to clear the screen. Then deselect All from the Project menu and re-select DF0 from Drive.

Once again you should click on the white rectangle representing the root block. This time you will notice that when the program reads the disc, only the header blocks appear.

Now by clicking on any of these the data blocks for that header will appear – very useful for seeing exactly where on the disc a particular file is stored.

This utility is at its most impressive when used before and after a disc optimiser. It shows very well how order comes out of chaos.



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Should you have problems with your disc . . .

● If you are not a subscriber and your disc does not work, please send it to: *Protoscan Ltd, Amiga Cover Disc, Burrel Road, St Ives PE17 4LE.* You will be sent a new disc.

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● If you damage your disc – for instance if the dog has chewed it or your mum has washed it – you can get a new one by sending £1.50 to *Protoscan Ltd.* Please make your cheque or postal order payable to Protoscan Ltd.

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button. You have drawn a line.

The main menu will reappear. Click once on Frames Menu and then Choose Frame. Twenty squares will appear, the first two of which are occupied by the line you have just drawn. Click once on the second frame. The main menu will come back, and in the background is your second frame.

Now click on Lines Menu and Redraw Line. Move the pointer over to the right-hand side of the screen and draw another line. Longer if you like. And at a different angle.

You've just created a second frame – the finishing point for the animation sequence.

Back at the main menu, click on Miscellaneous and then on Display Animation. Are you impressed, or are you impressed?

You can tween and transform filled areas as well as lines. The demonstration file shows this to good effect. Click on Miscellaneous and Load Animation to bring up a file requester. Click on Motion.demo and OK.

When the file has loaded, click on Miscellaneous again, followed by Display Animation. If the title bar is bugging you, you can switch that off in the Miscellaneous menu.

You'll notice that the background colour has changed for the demo. The program has a full palette of 32 colours, all of which can be changed to whatever hues you like. Double click on the Motion.doc icon to read the full instructions.

The Motion Maker was written by AmC reader Andrew McGough using Lattice C (v4.1), PowerWindows for the Intuition structures and the PD File-Requester program. Andrew, who is 17, has a one meg A500 with two disc drives. Top of his wish list is a video digitiser. The money he's earned by sending us this program should buy him one comfortably.

Andrew is currently studying for A levels. His ambition is to become an electronics engineer. He's certainly finding his way around the Amiga OK.

QuickStart

PROGRAMMERS, how many times do you hold Ctrl–D down to break into the CLI mega-fast, and having done that typed, system/setmap gb, setclock, setpatch... and so on? Well, wouldn't it be very handy to be able to type one word and have all your favourite commands executed for you?

If that's not what you want, too bad. However, if it is, QuickStart does just that. Read the instructions on how to use it by double clicking on the QuickStart icon.

This reader submission is from Toby Simpson, 19-year-old freelance programmer and director of The Mind Boggles Development Corporation. Toby and his one meg, twin floppy, A500 live in Norwich and share a wish list as long as your arm.

"It would be very nice to own an A2000", he says. "Then I can have a keyboard with a long dangly cable".

His ambition is to become excessively rich and one of the most respected Amiga programmers in the world. We suspect he probably will.

Workbench Mandelbrot

THE Mandelbrot set (as if you didn't know) is a set of points in a complex plane with a simple definition but a complicated fractal structure.

The equation $c = (c * c) + z$ is used recursively to generate a sequence of values for c starting with $c = 0$. The values of z in the complex plane for which the sequence converges are the points of the Mandelbrot set.

Told you it was simple.

To see what it looks like, double click the Mandelbrot icon in Reader-Contribution/Workbench-Mandelbrot. To make it a little more interesting, the points outside the set are coloured according to how many terms in the sequence are generated before divergence is obvious.

When it comes to a halt you can resize the window and then select a rectangle for enlargment by passing the mouse over it with the left button held down. Which should give you time to make a cup of coffee.

Workbench Mandelbrot was sent to us by 29-year-old CAD Software Engineer, Philip Gibbs. He wrote it "for something to do" in Lattice C (v4.0) on a one meg A500 with two drives.

IconMaster

DO you despair of the rather limited facilities of IconEd on your Extras disc? Then take a look at IconMaster – a complete icon designing studio from which it is possible not only to design the graphics of an icon, but also to set all the flags and edit the default tools as well.

The flags can be set by clicking on the gadgets in the top right- hand corner of the IconMaster screen. The tool editing section is an almost exact replica of the tool requester used by Info on Workbench, so it is familiar and easy to use.

The main screen will also show you the current icon – which will be the default one if you have just loaded the program – and the alternate image as it will appear on the Workbench screen. Various operations can be performed from here, such as deleting, swapping and copying the images, as well as specifying a path name for your own custom images to be used as defaults in place of the ones provided.

If you choose to Edit either of the icon images you will progress into the drawing studio part of the utility. The screen now resembles a small art package, which funnily enough is exactly what it is.

Some fairly advanced features such as solid or shell (outline) circles, text input and brush cutting are supported. There is also a palette containing the standard Workbench shades and a good selection of fill patterns using different mixes of the default colours.

There are a few sizing gadgets for determining the exact dimensions of your masterpiece, as well as a rather cunning gadget which will move the graphic to the top left of the window for you – all very handy if you are a messy worker.

Meanwhile, back at the main menu, you have the choice of loading or saving images from or to icons or to standard IFF pictures or brushes.

Note that although it will read IFF images, anything over two bitplanes will not produce the expected results. This means IconMaster is limited to four colours, but

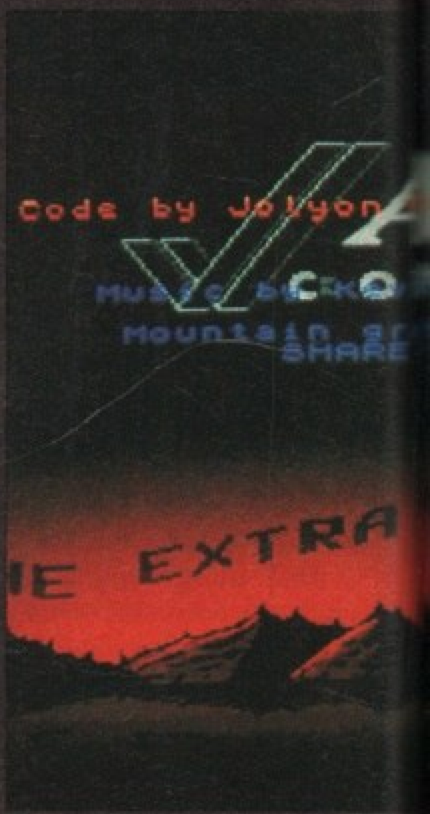


Picture-This

POOR old Jolyon suffered a major catastrophe this month when his A500 blew up. Not one to take things lying down, he went out and bought a shiny new A2000, complete with hard drive and Enhanced Chip Set. Now all he has to do is pay for it.

Jolyon's demo for October features a scrolling bitplane in the message at the top and Extra HalfBrite Mode in the sine wave scrolly. The music is once again by Kevin "Savage" Collier. Squirt it through the hi-fi. Wonderful stereo!

Click on the Picture-This icon in the Demo drawer to play the demo, or on the Picture-This.asm icon to view the source code.



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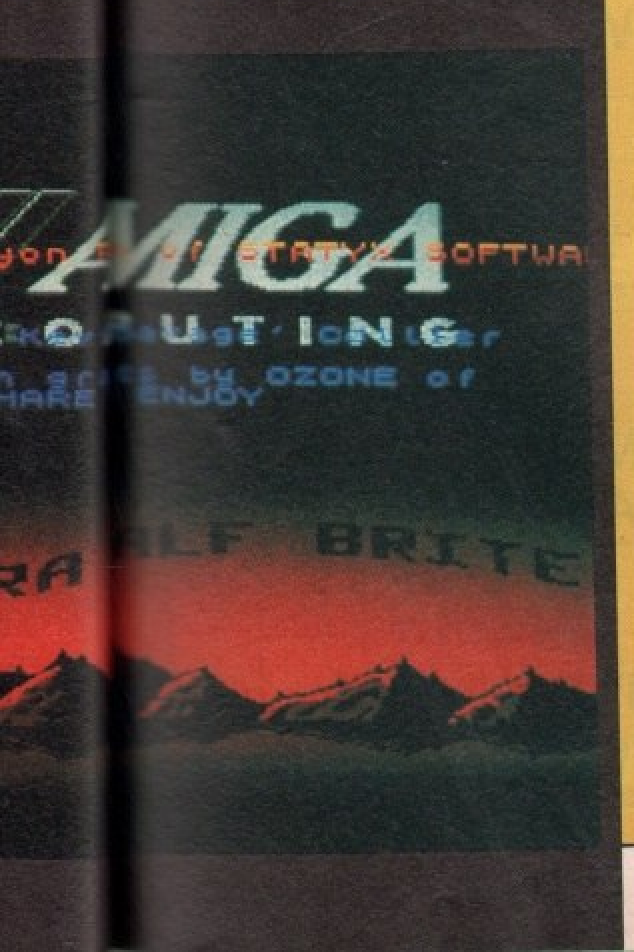
then so is any Workbench worth using. HAM pictures don't work too well either.

The size of the graphic is limited to 314 x 98 pixels, more than adequate for all but the most awesome icons.

The well written and extensive documentation in IconMaster.doc claims that online help is available by pressing the Help key. But the only help you are likely to get is help relieving you of your money. Sigh. That's shareware for you.



is demo



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We are looking for original contributions for the *Amiga Computing* cover disc. If you think something you have written or drawn is good enough to share with everybody else who reads the magazine, send it along and we will have a look. If we like what we see, it could earn you up to £1,000.

Please let us know if your submission needs any files from the Workbench disc. Programs which use the Amiga's built-in speech can be particularly greedy in this respect.

If your program is clickable from Workbench, feel free to design an original icon. In fact, we'll pay small amounts for good icons, even if there is no program attached. But don't make them too big. And please use the standard Workbench colours.

Bear in mind that a program which does not run on a 512k machine would have to be exceptionally good to make it on to the disc.

Please enclose this coupon, or a photocopy of it, with your submission. Include a file on the disc with full documentation, your name, address, phone number and a few details about you and your kit. Don't forget to duplicate on the disc label the program name, your name, address and phone number. If you want your disc back, enclose the correct amount in stamps.

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Evening phone... after.....pm
Submission name...
Submission size...bytes in total

NOTE: We will accept submissions up to 500k in total length, including documentation. But the shorter your submission, the better chance it stands of getting on to the disc. If it is a compiled or assembled program, include all the source code, but do not count this in the size of the submission.

Write a brief description of your submission below. If it consists of more than one file, describe what each file is for. Attach an extra sheet of paper to this form if necessary:

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Sign this declaration:

The stuff on this disc is mine. I didn't nick it off someone else. It hasn't been published before and I haven't submitted it elsewhere because I want *Amiga Computing* to publish it.

Signed.. Date..........................

Post your submission to: Jeff Walker, Amiga Computing, North House, 78-84 Ongar Road, Brentwood, Essex, CM15 9BG.

Picture this

Jolyon Ralph explains bitplanes, hardware scrolling and South American cuisine

BEEN messing around with copper lists for the last month? Want to do something else? What else can you do? Well, you could pack your bags, buy a one-way ticket to Peru and take up breeding guinea pigs. Or you could try messing around with bitplanes to get graphics into your machine code programs.

As I know little about Peru, and even less about guinea pigs, I will attempt to explain the latter – that is, how to get graphics on to your screen without all that tedious mucking around with rastports that most books tell you to do.

Firstly, I will briefly explain what a rastport is so you will know how to avoid it. It is a system structure which describes a user-defined screen. It contains lots of information like the size of the screen, the number of bitplanes, what resolution the picture is in and various other pointers to other strange system structures.

When you write a program that needs to multi-task you *must* access the screen via rastports, otherwise the poor old Amiga can't work out how to build its copper list to display your program.

This is, of course, totally unnecessary if your program does not need to multi-task. A game, for example.

If you are still interested in Peru, you may like to know that its capital is Lima and that guinea pigs are part of the staple diet in some areas. You must have a passport, not a rastport, to go to Peru.

BACK now to setting up a screen. First let's assume you have a picture you want to display. To keep things simple to start with, let's make it a 320 x 200 single-bitplane (two colour) picture. Let's assume you've got a raw bitmap file, not an IFF file. If you haven't, look at the box on the next page, which will tell you how to make one.

The first thing you have to tell the Amiga is the size of the screen you are displaying. Unfortunately this is not a simple matter of putting 320 in one hardware register and 200 in another. You will have to work out some values for hardware registers called DIWSTART, DIWSTOP, DDFSTART and DDFSTOP.

If you look at Figure I you will see that DIWSTART and DIWSTOP tell the Amiga where the top left-hand and bottom right-hand corners of the screen you want to display are.

How these values are worked out is a little strange, and a full explanation here would only confuse matters. You'll find the relevant information in the Hardware Reference Manual; basically they are offsets from the top left-hand corner of the screen.

For 98 per cent of your programming life you can work out the values you need for DIWSTART and DIWSTOP by altering the standard values.

For a standard NTSC screen – 320 x 200 in lo-res – DIWSTART is $2c81 and DIWSTOP is $f4c1. This means the screen display starts at scanline $2c and finishes at scanline $f4.

For a PAL screen – 320 x 256 in lo-res – DIWSTART is the same, $2c81, but DIWSTOP is $2cc1. This is because $2c plus 256 ($100) is $12c, and as only a byte value can be used, the extra 1 is lost.

The horizontal values of $81 and $c1 are fixed for a 320 wide screen and only need to be changed if you are using an overscan display.

DDFSTART and DDFSTOP tell the Amiga where the left and right edges of the display area are. You may be wondering why this is needed –

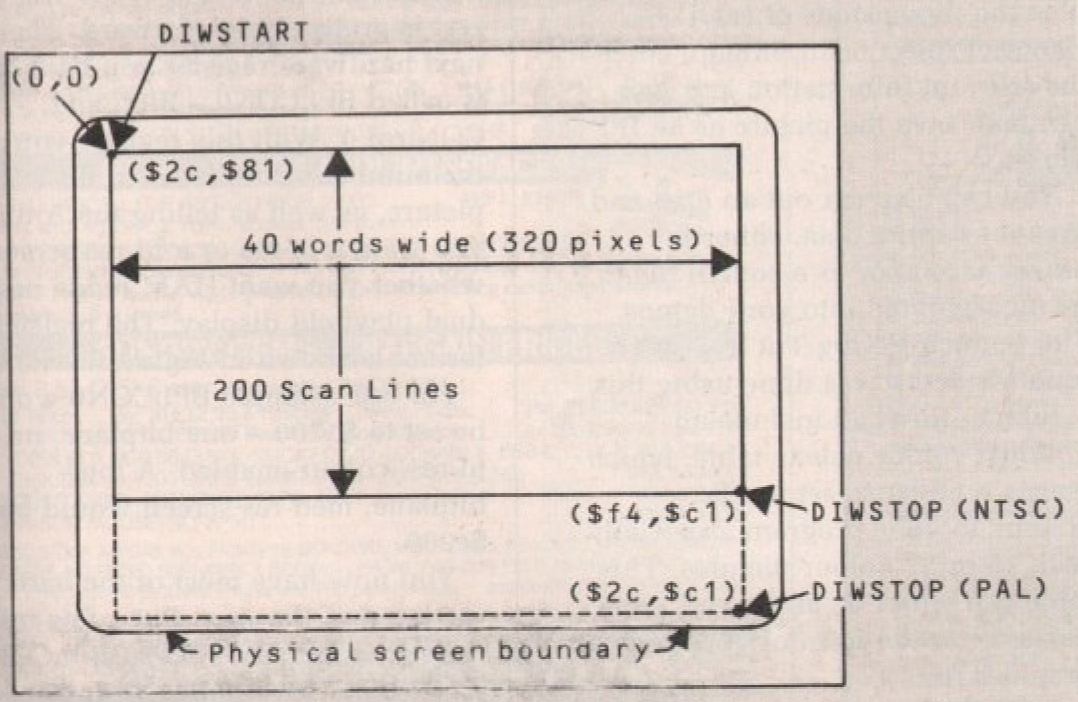


Figure I: Amiga screen layout

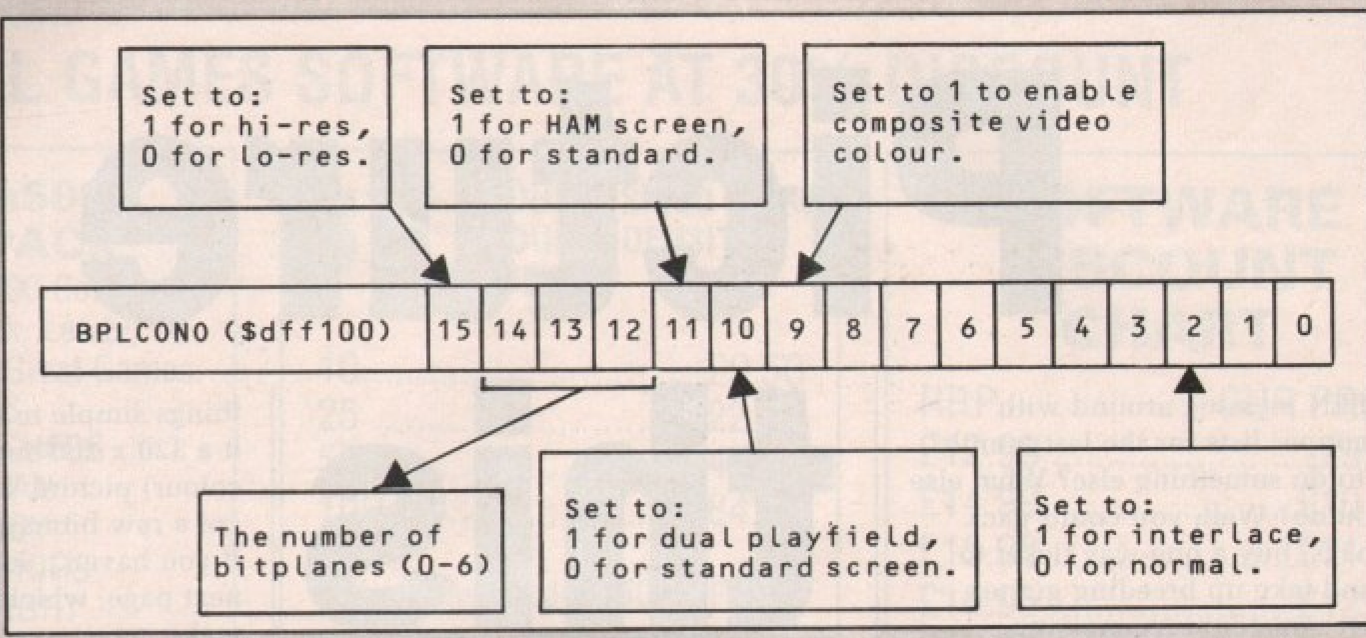


Figure II Setting up bitplane control register 0. The bits not pointedto are either not used or not important.

surely the two corners are all that is required to define a display area? But DDFSTART and DDFSTOP can point to a different position to that in DIWSTART and DIWSTOP so that a portion of the screen is not shown.

This is useful if you are scrolling the screen and want to update the picture on a part of the screen that is not visible – advanced stuff, and beyond the scope of this article. In general DDFSTART and DDFSTOP can be worked out from the values you set DIWSTART and DIWSTOP.

Again, this involves complex formulae to work out. If you feel inclined to do so – and you will only need to do this if you want to use overscan – I recommend you look at the Amiga System Programmers Guide by Abacus, which explains the method of calculation very well.

In general you will only need to use $38 and $d0 respectively for DDFSTART and DDFSTOP if you are using a lo-res screen (anything with a width of 320 pixels), and $3c and $d4 if you are using a hi-res screen. In this context hi-res is any screen with a 640 pixel horizontal width – the Workbench screen for example, which is classed as a med-res screen.

Confused? Blame Commodore, not me.

ONCE you have the complexities of the DIWSTART/STOP and DDFSTART/STOP out of the way, the rest is pretty straightforward. The next hardware register you have to set is called BPLCON0 – BitPLane CONtrol 0. With this register you set the number of bitplanes in the picture, as well as telling the Amiga if you want a lo-res or a hi-res screen or whether you want HAM mode or a dual playfield display. The register's format is shown in Figure II.

For our example BPLCON0 would be set to $1200 – one bitplane, no hi-res, colour enabled. A four-bitplane, med-res screen would be $c200.

You now have most of the hard work out of the way. But a few minor registers still need setting. BPLCON1 ($dff102) is the smooth horizontal

Making a raw bitmap data file

RAW data files contain all the bitplane data in sequential order. They can also contain the colour palette. IFF files contain compressed screen data plus data on screen type, size and can also be compressed. However it is much easier to use raw data files in your programs.

The program IFFconverter supplied on this month's cover disc converts an IFF file – saved from DPaint or any other graphics package – into a raw data file. It can also turn IFF files into sprite data, so keep it handy for next month.

To convert a standard IFF picture into a bitmap of the same size as your original IFF file, choose Load:IFF and Save:Bitmap from the Project menu. Type in your filename and click on the Save gadget.

To convert a standard IFF picture into a bitmap of a *different* size to your original file, do the same as above but choose the Frame–Save gadget instead. You can then mark out the area you wish to convert.

To convert a bitmap back into an IFF file you must first know how many bitplanes the picture has, plus the dimensions of each. Choose Project:Load:Bitmap, enter the relevant information and you can then save the picture as an IFF file.

You can also cut out an area and save it as sprite data, either in binary format or as a source file to be incorporated into your demos. The bouncing King Tut in last month's demo was done using this.

Bitmap files can include an optional colour palette table, which makes it easier to set up the colours in your program, especially with 16 or 32 colour pictures. This table can either be at the end – the default – or the front of your raw graphics file.

◀

scrolling register; set this to zero for the moment.

BPL1MOD ($dff108) handles bitplanes 1, 3 and 5 while BPL2MOD ($dff10a) handles bitplanes 2, 4 and 6. They determine the number of words missed off the end of each line before the next line of graphics data is displayed. If these were set to 40 it will miss out an entire line on a normal screen before displaying each new line, hence making the display look half its normal height. A normal display should set both to zero.

Now you will need to set up the colours for your picture. The colour registers – there are 32 of them – start at $dff180. For our single bitplane screen we only need to set the first two.

The colour is calculated in hex by taking the value of 0 to 15 for each of the red, green and blue components – as shown in the Deluxe Paint palette window – and converting it into a hex digit. For example, black is $000, white is $fff, blue is $00f and yellow $ff0.

The last things we have to set up are the bitplane pointers – called BPL*x*PT, where *x* is the bitplane number, 1 to 6. This tells the Amiga where our graphics data is stored in memory. Graphics data can only be stored in chip memory, the lowest 512k at the moment. You will soon be able to use a meg of chip memory when the enhanced chip set (ECS) is released.

"You have to reset the bitplane pointers every time the screen is displayed"

You will be pleased to know that all you have to do is throw the address of each bitplane into these registers and that's it.

COULDN'T be simpler, could it? Well, actually, it could. There's one little snag. While the bitplane is being displayed on screen, these registers are updated. Every time one word of data is taken from memory and displayed on the monitor, the bitplane pointers are changed to point at the next word.

The outcome is that by the time the Amiga has finished displaying a 320 x 200 pixel screen the pointers are all 8,000 bytes higher than you set them. This means you have to reset the bitplane pointers every time the screen is displayed – every fiftieth of a second in Europe.

Before those of you who have programmed other machines start muttering strange things like timing loops and interrupts, I must point out

▶

```
** This will set up a 1 bitplane 320*200 pixel screen.
** NEEDS TO BE IN CHIP MEMORY.

 SECTION Scrn,CODE_C          ; Needed for DevPac 2.

OpenLib     equ -552    ; Offset for OpenLibrary.
CloseLib    equ -414    ; Offset for CloseLibrary.

diwstart    equ $8e     ; Screen hardware registers.
diwstop     equ $90
ddfstart    equ $92
ddfstop     equ $94
bplcon0     equ $100
bplcon1     equ $102
col0        equ $180
col1        equ $182
bpl1pth     equ $e0
bpl1ptl     equ $e2

** Because the copper list needs to move the address of our
** screen memory in two 16 bit words rather than one 32 bit
** long word, we must split the long word into two words
** and put them in the copper list.

 move.l #screen,d0  ; Get address of our screen memory.
 move.w d0,pl1l     ; Move the low word into the copper list.
 swap d0        ; Swap the low and high words in d0.
 move.w d0,pl1h     ; Move the high word into the copper list.

 move.l 4.w,a6      ; Get EXECBASE.
 lea gfxname(PC),a1 ; Point to 'graphics.library' string.
 moveq #0,d0        ; Ignore version number.
 jsr OpenLib(a6)    ; Open the library.
 move.l d0,a1       ; Store library address.
 move.l 38(a1),old  ; Store workbench copper address.
 move.l 4.w,a6      ; Get EXECBASE again.
 jsr CloseLib(a6)   ; Close the library.

 move.l #new,$dff080    ; Set new copper.

loop:
 btst #6,$bfe001    ; Check for left mouse button.
 bne.s loop     ; Loop until pressed.

 move.l old,$dff080 ; Restore old copper list.
 rts

new:            ; Start of our copper list.

 dc.w diwstart,$2c81    ; Top left corner of screen.
 dc.w diwstop,$f4c1 ; Bottom right corner of screen.
 dc.w ddfstart,$38  ; Data fetch start.
 dc.w ddfstop,$d0   ; Data fetch stop.

 dc.w bplcon0,$1200 ; Set BPLCON0 to 1 bitplane lo-res.
 dc.w bplcon1,$0    ; No horizontal offset.

 dc.w col0,$0       ; Black background colour.
 dc.w col1,$fff     ; White foreground colour.

 dc.w bpl1pth       ; Bitplane high word.
pl1h
 dc.w 0

 dc.w bpl1ptl       ; Bitplane low word.
pl1l
 dc.w 0

 dc.w $ffff,$fffe   ; End copper list.

old dc.l 0

screen:  dcb.b 8000,$55 ; This is a block of 8000 bytes of
         ; a set pattern (change dcb to blk for
         ; the K-SEKA assembler).

gfxname dc.b "graphics.library",0

** If you have a raw picture file of 320 x 200 size in 1 bitplane
** you can replace the DCB.B 8000,$55 with an INCBIN "filename"
** command (Devpac 2 only) which will load in your graphics data
** when assembling.

** End of listing.
```

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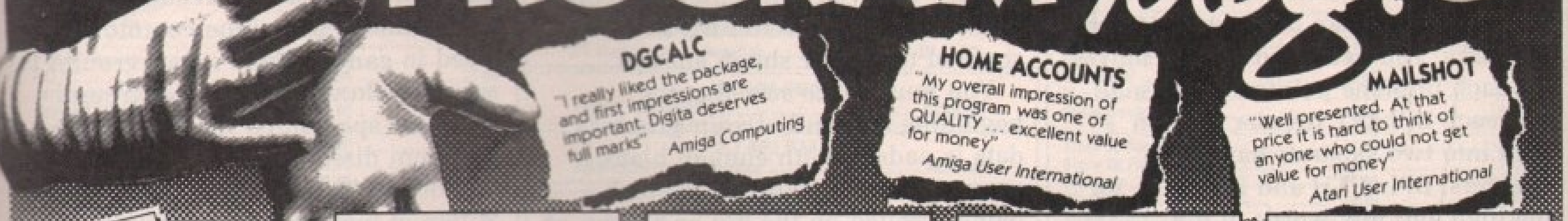
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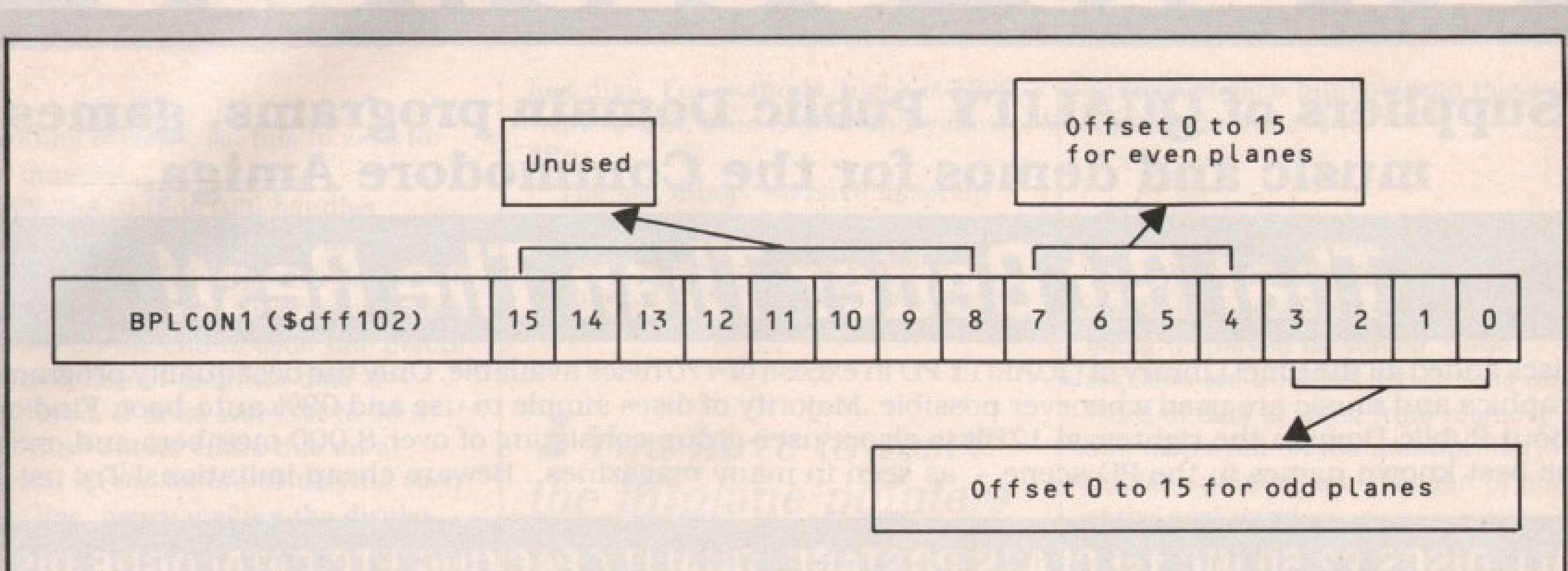


Figure III: Setting up BPLCON1, the smooth horizontal scrolling register.

◄ that there is a very easy way to update these pointers – use a copper list.

In fact it's easier to set up the whole screen from a copper list – that's what the copper was designed for. The example listing will show you how to set up our simple one-bitplane screen.

Note, though, that because an address is a 32 bit number – although only 24 bits are used on the 68000 – and the copper can only move 16 bits at a time, you need two copper moves for each bitplane pointer. Because of this each BPL*x*PT register is often split into two separate hardware registers, BPL*x*PTH and BPL*x*PTL for the high and low words of the address respectively.

If you've got the one-bitplane screen working, why not try to convert it to use five bitplanes? First you must set BPLCON0 to $5200 instead of $1200, then you must add in the other four bitplane pointers.

Convert a five-bitplane picture to a raw file. Make sure it is a 320 x 200 picture, King Tut on the Deluxe Paint disc for example. If you want to use a 320 x 256 picture you will have to change DIWSTOP to $2c81, otherwise you will lose the bottom. Don't forget you will have to set *all* 32 colour registers now, not just the first two.

There is an option in IFFconverter to append the palette information to the end of the bitmap file. You can then read the palette and copy it straight into the colour registers, or into your copper list if you are setting it up from there. This saves a lot of time and effort, and you can put a different picture in your program without having to work out the palette every time.

NOW you've got a 32-colour picture on the screen, here are a few more things that you can do. If you change the bitplane pointers by adding or subtracting a multiple of the number of bytes in a line – usually 40 – you can achieve smooth vertical hardware scrolling, as used in some of the better shoot-'em-ups.

You must make sure that the beginning and end of your graphics data is padded with enough blank memory, or you will find rubbish being scrolled on the top or bottom of your screen.

By adding or subtracting 2 to each bitplane pointer – you cannot add 1 as the pointers must always be even – you can achieve rough horizontal scrolling – rough in that you can only move the screen 16 pixels at a time by this method.

Remember I mentioned BPLCON1, the smooth horizontal scrolling register? This is what comes to the rescue. It can offset the screen horizontally by 0 to 15 pixels. So by a combination of changing the bitplane pointers by plus or minus 2 and setting the smooth value in BPLCON1 you can achieve totally smooth, 50 frames a second, horizontal hardware scrolling. The Atari ST cannot do this, which is why the horizontal scrolling games on that machine are so bad.

Another common trick used in games is the dual playfield. This sets up the bitplanes as usual, but divides the screen into two separate screens, or playfields. The odd bitplanes (1, 3 and 5) are one playfield and the even bitplanes (2, 4 and 6) are the other.

Most hardware registers either have duplicates for odd and even bitplanes – for example, BPL1MOD and BPL2MOD – or have separate bits to be set for the odd and the even planes, like BPLCON1 in Figure III.

This means that the two playfields can be set up differently and can be scrolled in different directions at the same time, a technique commonly used in games where a background is scrolled slowly and the foreground contains spaceships scrolling in a different direction.

Hold and Modify (HAM) uses a different type of screen format altogether, and although hardware scrolling is possible, it's not recommended because all sorts of mess appears on the screen unless you are very careful – and very clever.

OK. You should now be able to set up your own screen using a copper list, and it should be obvious that you can change the registers in the copper list at a particular position to swap to a different graphic screen.

This is what the system copper list does when you have a program running, say DPaint, and you drag the screen down so you can see the Workbench in med-res at the top and DPaint in low-res at the bottom. By changing the wait before the second screen you can scroll the second screen over the first, or make it bounce up and down.

● *NEXT MONTH: Hardware sprites.*

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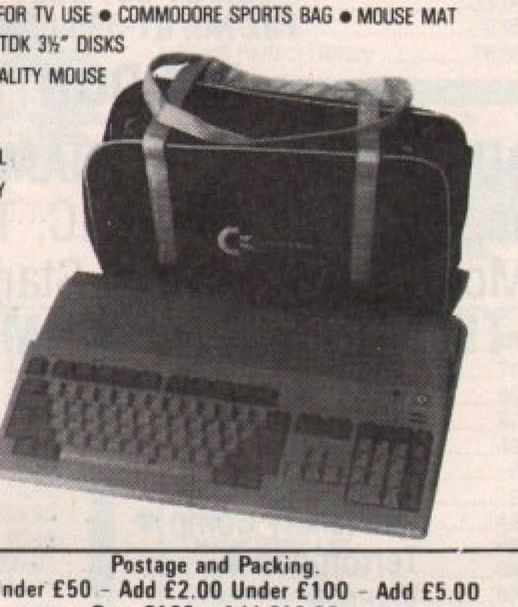
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Happy homework

Commodore may be marching on the schools to sell them Amigas, but there is not much scope for home tutoring. One package sticks its head over the educational parapet. Alex Aird dons the mantle of professional parent

READERS' letters to *Amiga Computing* often bemoan the lack of good educational software, indeed the lack of *any* educational software. There is an exception, a program which really turns the Amiga into a teaching tool.

Fun School 2 comes in three different versions aimed at three age groups – under 6, 6 to 8-year-olds, and 8 and over. Each consists of eight programs which aim to teach through play.

I was given this software to review because I have two children, Alexander aged four-and-a-half and Karen aged 10. They both enjoy playing games on the computer – Silkworm is my son's current favourite and Infocom adventures seem to be the things my daughter plays the most. But did they learn anything from Fun School 2?

FUN School 2 can easily be played by several children at the same time using one computer and could be used in a classroom. Groups could be given one program to solve between them and then they could all come together to solve the last problem.

My son quite enjoyed Spell a Word. He now knows how to type simple words like cat, hat and bat. All I need to do now is teach him how to write the words down on paper – he can type much faster and more accurately than he can write. Colour Train and Find the Mole were two other games he liked to play. They were teaching him something. He recognises more colours and understands that four is smaller than five, so both of these programs worked.

It is more difficult to assess what my 10-year-old daughter learned. Unicorn kept her busy for a while, but after she had completed the game once she never looked at it again. She didn't seem to like Build a Bridge. This is really only a simple jigsaw and she has jigsaws already. The word games Passage of the Guardians ▶

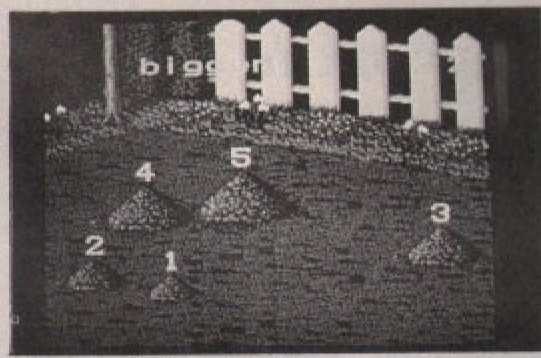
Under 6

YOUNGER children will enjoy games like Teddy Count, which teaches simple numbers. Up to nine teddies walk across the screen and the child has to count how many there are then type in the answer.

Find The Mole is another numbers game. The idea is to guess under which molehill the mole is hiding. There are five molehills with hill number five the biggest and hill one the smallest. If the child makes a wrong guess the computer responds with either bigger or smaller. The idea is to teach the fact that five is bigger than four.

Spell a Word shows the child one of ten pictures of an everyday object and the child has to type the name. Simple words like car, bat, door and so on are used which should be familiar to most pre-school children.

Pick a Letter displays the whole alphabet and shows a word at the bottom of the screen. The child has to pick up the letters of the word and place each letter in turn in the answer space at the bottom of the screen. Parents can make their own word lists if they wish, entering family names, favourite toys, Swiss bank account number and the like.



Message in the molehills

Write a Letter lets a child experiment. Children can press any keys they like and see them appear on screen in large type. This program teaches the general layout of the keyboard. Parents or teachers can type words for children to copy or simply let the child experiment. The final masterpiece can be printed out and stuck on the fridge with a magnet (not supplied).

Colour Train teaches colour recognition. The child has to stop the train at the correct coloured station. At the start there are only three stations but these increase to six as the child progresses.

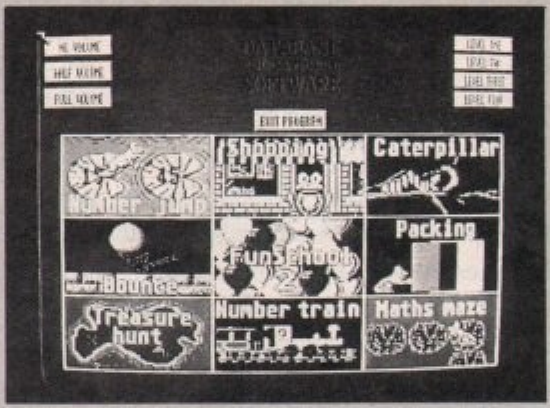
Teddy Bear Picnic is a maze game which teaches both coordination and logical thinking. The aim is to move the teddy bear, using the mouse or arrow keys, through different mazes and to the picnic. The games have four levels of difficulty, which can be set by the parent or teacher.

For six to eights

EXPERIENCE shows that as we get older things get more complicated. For the six to eight year olds the format is the same. This time the cursor is a frog which leaps about as the child moves the mouse. The train reappears as Number Train, but as a result of ASLEF action is a little more difficult.

The coloured train still has to be stopped at the correct coloured station, but as passengers get on and off the child is presented with a simple sum such as 4+2=? and the correct answer has to be entered.

Another number game is Maths Maze. The frog has to be guided along stepping stones. When it meets a robot guardian the child has to answer a simple mathematical



Facts with a frog

question. There are four levels of difficulty and some problems may need a pencil and paper to work out.

Caterpillar is a version of Hangman. Every time a correct letter is guessed the caterpillar moves closer to the apple, finally eating it when the word is correctly guessed.

Why you should want to promote the destruction of crops is beyond me. Perhaps the apple has been sprayed with an insecticide.

Packing is a game where different shaped objects have to be placed into a box. Three levels of difficulty include more complicated shapes and include rotating the shape to fit into place. Ideal if you want your kid to get a job stacking shelves in Tescos.

Shopping is a game which aims to teach reading and comprehension. Perhaps you have aspirations beyond working the checkout. The child is presented with a shopping list and a picture of a row of shops. Guide the frog to each shop in turn to buy the items on the list.

Should dog food be bought from the grocers or the pet shop? The question of why the frog wants dog food, how it will open the tin and how it will feed the dog without itself becoming the hors d'oevres is not addressed.

◄

and Mystery Machine worked better and it seems that she learned something from them. We had problems with Logic Doors, a colour maze game, where you have to pick up coloured keys. She said: "I think that the game could get quite boring. I don't really understand it". My failure as a teacher perhaps?

But Karen quite enjoyed Souvenirs, liking the idea of exchanging pounds into foreign currency and then buying presents. She now knows more about the countries of Europe than before.

Fun School 2 will teach children. They are not programs that you give to the child and then leave them to get on with it, the parents need to sit in and guide them through the problems. But as John Ridge pointed out in his article (*Amiga Computing*, July 1989) any program that can get a parent and child together for the child's education, and keep them there for some time, has got to be good.

The programs can be considered as an aid to education rather than an end in themselves. For example, a four-year-old will learn a few new words from Fun School 2 but it is up to the parent to keep the process going with pencil and paper.

Database Educational Software has plans for a Fun School 3. It has proved that it is possible to write tutorial software which is both a commercial success and worth using. Perhaps they have learnt the greatest lesson. Good software sells.

Getting bigger

OLDER children, eight and over, have games which are more challenging and the whole program has a single theme. On completion of a single program a keyword is given. These keywords need to be written down so that the last puzzle, Escape, can be completed.

The packing game reappears as build a bridge. Hmm, civil engineer perhaps. Shapes must be picked up, rotated if necessary, then fitted into the correct place. For the older children there are more shapes and most need to be rotated.

If you don't want your child to grow up to be a newspaper editor avoid the two word games Mystery Machine and Passage of Guardians, an anagram game. Guardians block the path and the child has to correctly solve an anagram to pass on to the next guardian.

Children can go on a tour of Western Europe in Souvenirs. When the child gets to a country there is an option to buy presents. The prices are given in local currency so the child has to convert sterling to marks, francs or whatever and decide which present he or she can afford to buy. Later on destinations are chosen by picking a flag. It is necessary to know the flags of Europe to play the game at this level.

Code Boxes is a game which introduces children to binary numbers. It is necessary to convert from binary to decimal numbers in order to solve the puzzle. This can be used as an introduction to different numbering systems in the hope that in the hope that your child will go on to write Starglider 47.



Buying Euro presents

Other games, such as Unicorn, involve solving logic or arithmetic puzzles which are presented in an interesting way. This is based on the old fox, corn and chicken problem. When all the puzzles have been solved and the keywords collected the last game, Escape can be played.

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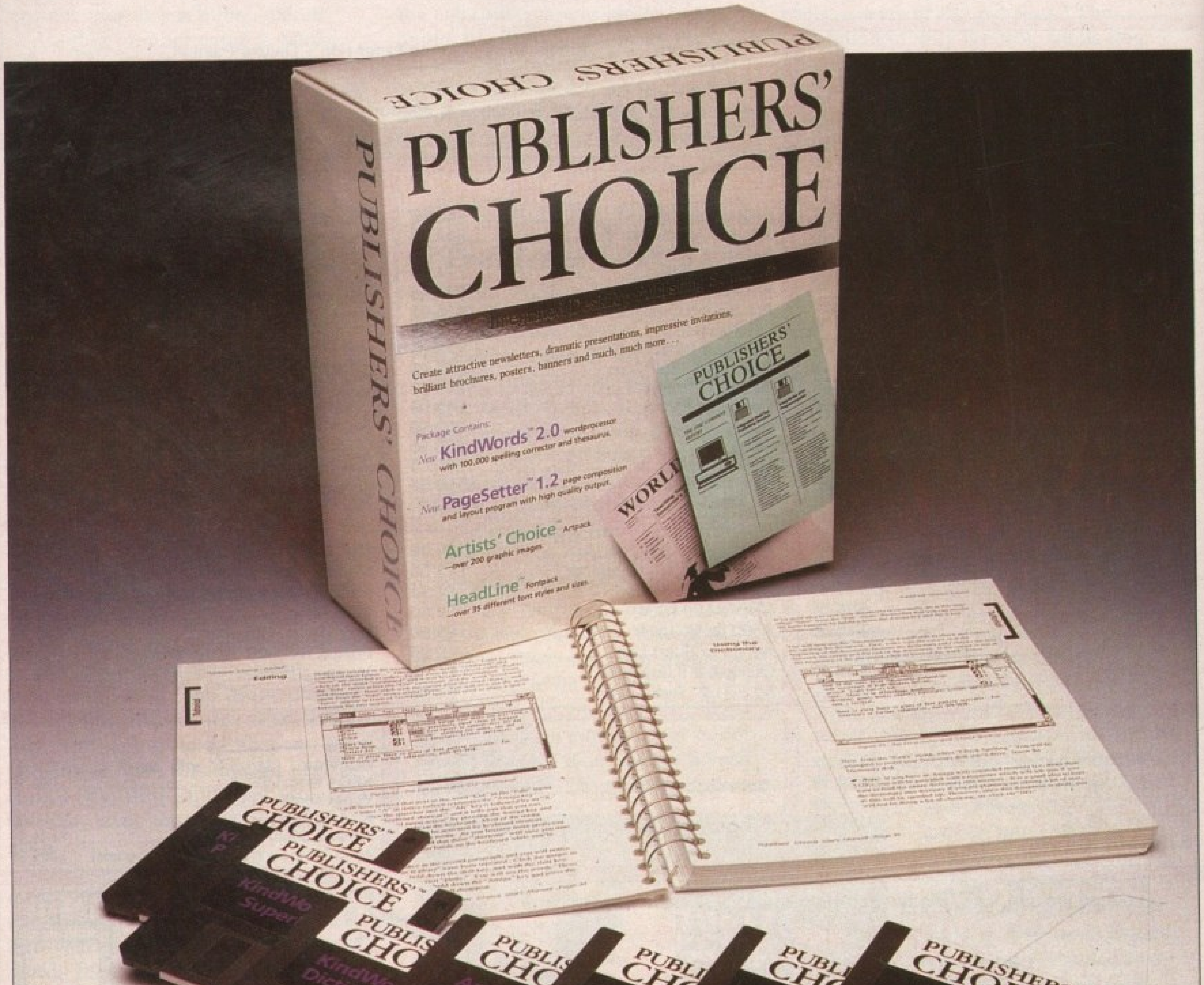
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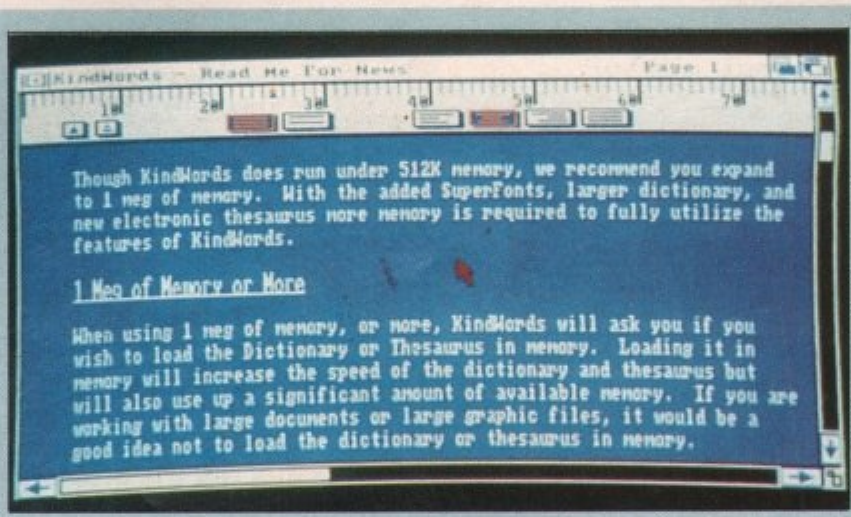
Rupert Goodwins looks over a big box of DTP software which only lacks big box prices



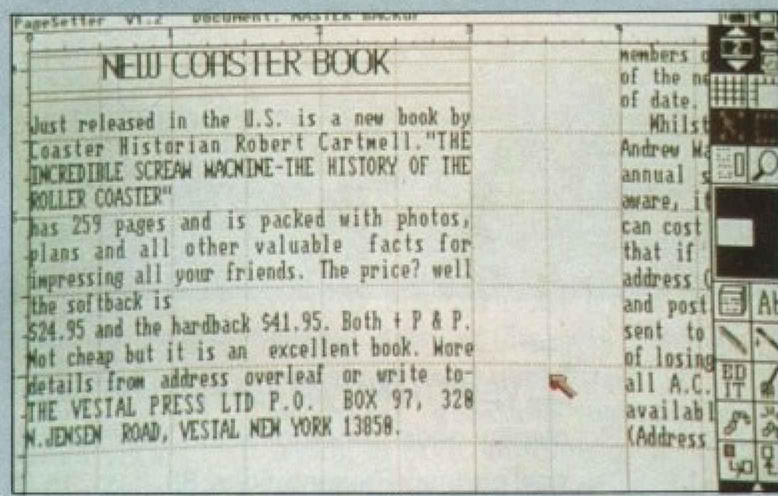
PARALLEL evolution happens when separate species evolve into similar lifeforms. There are lots of small, furry monkeys in South America that look uncannily like small, furry marsupials in Australia. It seems to be happening with the computer software industry and the book publishing scene as well.

In old-fashioned publishing there is a breed called the packagers. These small, furry animals take an idea and find writers, artists and designers to produce a finished package. Now The Disc Company has followed a similar path and combined word processor, page layout and art discs from separate companies to produce one package – Publisher's Choice – which provides a route into desktop publishing for the Amiga owner.

That The Disc Company is well named becomes obvious when the envelope is opened – seven discs fall out. Even backing up is an expensive game in DTP. On these discs reside KindWords 2.0, PageSetter 1.2, LaserScript, ArtPack and HeadLine FontPack. Why SoftWare PubliShers have to InterNally CapitaLise all their ProgRam names is BeYond me.



Very much in the load and go spirit, Kind Words encourages you to start typing the moment it is run



The PageSetter screen has a selection of icons which, at first glance, make no Sense. You need to read the manual

KindWords 2.0 is a development of KindWords 1, reviewed in *Amiga Computing* September 1988. It's a full wysiwyg word processor, with 100,000 word spelling checker, 40,000 word thesaurus and some advanced printing features. Very much in the load and go spirit it encourages you to start typing the moment the program runs.

PERHAPS its most noticeable missed feature is the ability to work with more than one document at once, although those with 1 meg machines will be able to have more than one copy of the program running.

It is included in the package as a text editor for the page layout facilities, but it has certain DTP-like functions itself. For example, it can merge IFF images into the document, and lets you stretch or shrink them to fit. It can't make text flow around graphics, and since it has no provision for more than one column on a page the graphics aren't suited to anything more than a letterhead or occasional illustration. But then, PageSetter's there for anything more adventurous.

Kindwords is exceptionally easy to use. It follows the standards found in the Macintosh world in the way that text is selected by clicking the mouse at the beginning of a block and dragged to the end. This block changes colour.

Changes to typeface, font or style only apply to the current selection. Alternatively, single words can be selected by double-clicking with the pointer anywhere inside them; triple-clicking selects the entire sentence. Justification and centering are taken care of by a visible ruler – click on the little picture of centred text and the selected block centres.

Automatic hyphenation tries to make the lines of the text appear nicer by bunging a hyphen in between syllables of words that would otherwise move to the next line and leave an ugly gap. There's more to hyphenation than that, but the full rules for deciding whether or not to hyphenate are complex (bears only do it during the winter) and not suited to a program such as this, so there's an option for manual hyphenation.

The spelling checker and thesaurus come with British dictionaries, thank goodness. KindWords is available in nine language variants, an international approach which puts many software houses to shame. It all works on a single drive 512k Amiga, but positively purrs on the 1 meg, two drive system on which the program was tested.

With a megabyte or more of memory, the program can keep dictionaries in ram instead of on floppy, which speeds up the spelling check tenfold. The thesaurus makes a stab at telling you what the meaning of the word is; it isn't to be relied on.

KindWords is easy to use. It hasn't got the bells and whistles of WordPerfect, such as macros or columns, and it hasn't got the speed of Protext. But there will be few people who stick with it as a good text entry machine for DTP, and it has things like a simple mail merge which make it a good domestic word processor.

Pagesetter is the other major component in Publisher's Choice. It lets you move text and graphics around a set of pages until it looks right, and then prints them out. Starting with a blank work area, you create a page, draw a set of boxes and then fill the boxes with text or graphics.

You need to read the manual before starting, as the screen has a selection ►

◄

of icons which, at first glance, make no sense. The command menu along the top of the screen is more intuitive. Project contains file load, save and quit options and Department gives access to text and graphics editors as well as the print command. Art Board sets the size of grid on which the page will be created and whether you want to work in inches or picas. Page controls the creation and deletion of pages; Box sets options for the kind of box you want.

CLEVER stuff lies along the right-hand edge of the screen. Gadgets choose the page number – a document can be up to 99 pages long, if you've got the memory and the patience. You can turn the grid on to precisely set the position of boxes and off to examine the final work without that unfashionable maths book finish.

Once a box has been placed, it's the work of a moment to reposition, resize and crop the contents until it looks right. Boxes can be linked, so a lot of text will automatically flow from one to another in columns, across pages and in and out of anywhere you choose. What it can't do is flow around a graphic, unless you link boxes before and after the box with the picture in it. Typographical tricks, where text wanders around an oval or bifurcates across a triangle, are out.

The text and graphics editors are simple but well-suited to their role in life. The text editor allows block moves, search and replace, and the insertion by hand of font formatting effects (/b for bold, and so on). It can read many different kinds of text file, KindWords, WordPerfect and Scribble! among them. More than that, go back to KindWords for heavy duty word mangling.

The graphics editor moves blocks of picture around, draws lines, resizes things, fills areas, all in glorious monochrome. Given that 99 per cent of DTP is black and white, this is good. Things go faster in two colours.

The graphics editor makes it easy to tidy up slightly messy imported graphics. Again, if you want Michelangelo mode, get out of PageSetter and into your art program.

You can choose how closely you want to work with the page by clicking on the magnifying glass icon which selects various sizes. The largest lets you examine the details of the text or graphics on the page; the smallest reduces the page to about half-screen size so you can move entire boxes off and on to the surrounding board. Temporarily homeless chunks can be tacked on to a different page later.

In a close-up view, the area of page displayed is selected by moving a white box around a black rectangle. There are no scroll bars to move around the page in a more restricted manner, and this makes initial attempts to find a particular area rather clumsy.

The coup de grace can be administered to any box by dragging it across to a rather disgusting trashcan in one corner. The pointer changes to a tombstone in a morbid mixed metaphor.

PageSetter comes with 14 fonts of varying utility. Alternatively, using one of the four fonts supplied with the LaserScript disc gives PostScript-compatible output.

LASERSCRIPT is a translation program that takes a PageSetter file and turns it into a file that can be printed on any PostScript device. These include shockingly expensive laser printers and typesetters, but means you can run off test documents on your cheap, nasty, dot matrix printer before taking a disc down to a typesetting bureau and getting commercial quality pages printed.

Finding someone with a suitable typesetting machine and an Amiga is often a problem. The Text Formatting Company (01-806 1944) provides such a service.

LaserScript also lets you rotate your document, surround it by a shadow border, resize it and so on.

The final goody in the Publisher's Choice package is the collection of clip art – a few hundred mixed images in IFF format, little pictures to distribute around your documents. All human life is there, spacemen, dragons, Santa Claus, computers, dogs, lighthouses and the Starship Enterprise. It's unevenly drawn, and some of the pictures look decidedly amateurish.

All the images are in the manual, as are the fonts. The manual is a large, ring-bound item divided into an overall tutorial section, bits on the individual packages with lots of hints and tips, appendices and an index. It's well written and easy to use, although the illustrations were printed on something desperately in need of a new ribbon.

PRINTING uses WorkBench 1.3 printer drivers. The whole set of discs comes with enough WorkBench files to let PageSetter, KindWords and LaserScript boot up in minimal ram usage configurations, as well as various hard disc installation programs. Everything in the package follows the multi-tasking rules, so if you've got enough memory you can run the entire set together.

The advent of the bundled package is an interesting milestone. It gives users the chance to pick up a number of programs for quite a low price, and solves many of the "will my word processor work with that DTP program?" questions that anyone trying to build up their own selection must answer. On the debit side, if you don't like the word processor you won't be able to sell it because there isn't a separate manual.

Publisher's Choice is a good package for those who want to get into DTP but who haven't yet bought a word processor. While it might limit the experimentally minded after a few months of serious playing, it has the potential to generate documents of typeset quality and will be more than adequate for 80 per cent of DTP applications. It's also easier to dive into than many more specialised programs.

REPORT CARD

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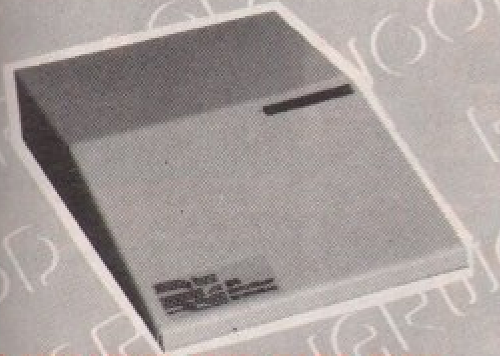
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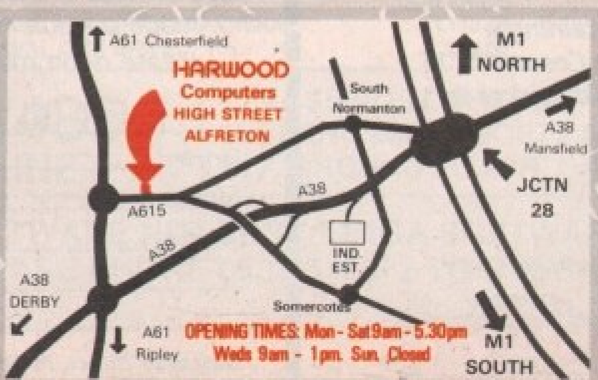
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Screenshots from Atari ST version

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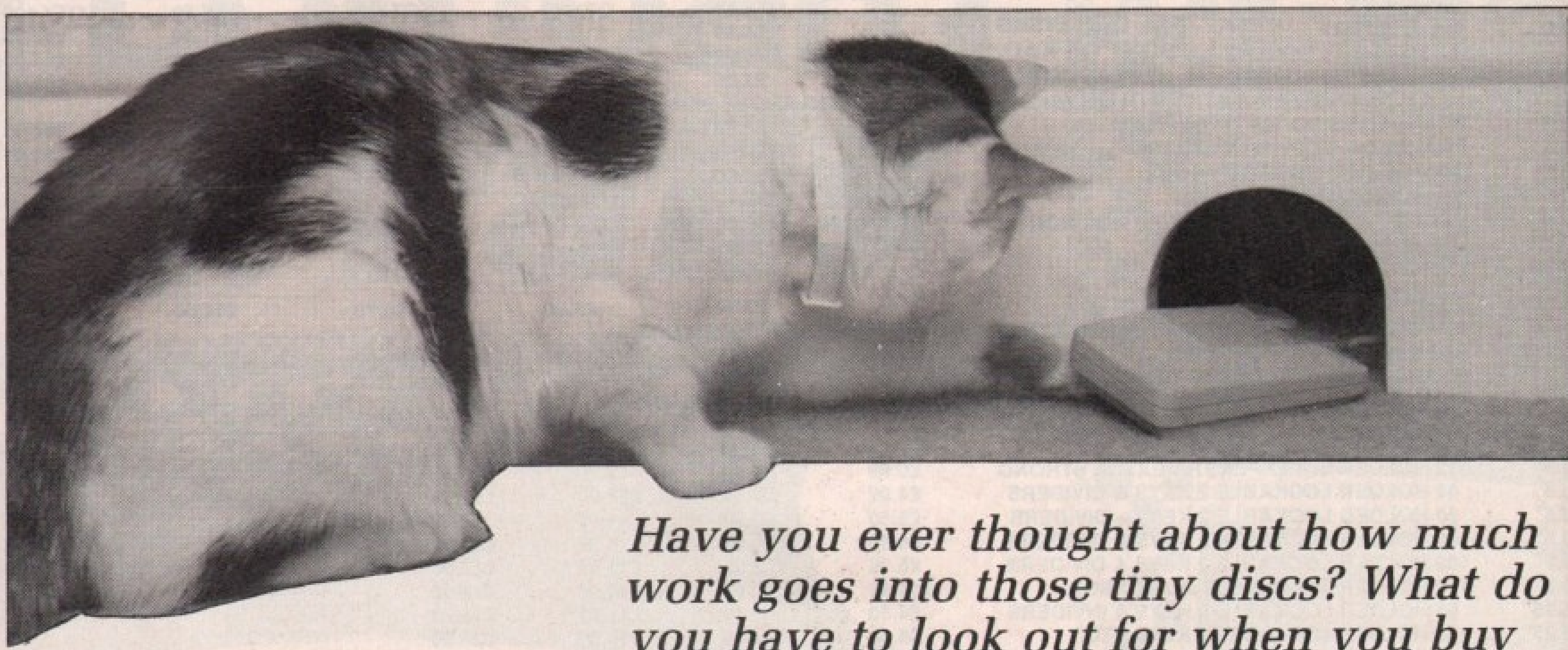
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Have you ever thought about how much work goes into those tiny discs? What do you have to look out for when you buy them and what do you do when things go wrong? Henning Sorenson tells the story

Dance around the disc

MAKING discs is not a simple process. Many steps are needed along the way, and in a disc manufacture plant the process may go something like this. First the magnetic iron oxide is produced. This forms the basis of the magnetic media. It is mixed with a binder to help it stick to a carrier film, and prevent the molecules from going astray under their magnetic influence on each other.

Now the magnetic material has to be coated on to the carrier film, which has been electrically discharged, in a thin uniform layer.

The film and coating are usually checked for defects – the first check out of many in the production run. What we have now is a big roll of the magnetic media, about the size of the rolls of paper used in the printing industry. The next stage is to punch the discs out. The hubspring – the metal thing in the centre of a disc – has been punched out and pressed into shape and is glued on to the disc.

Now the discs are put through the second test in a purpose-built drive that can handle sensitive naked discs. These machines usually have more than the normal number of read/write heads, maybe eight as opposed to two as in an Amiga, so the test can be fast and efficient.

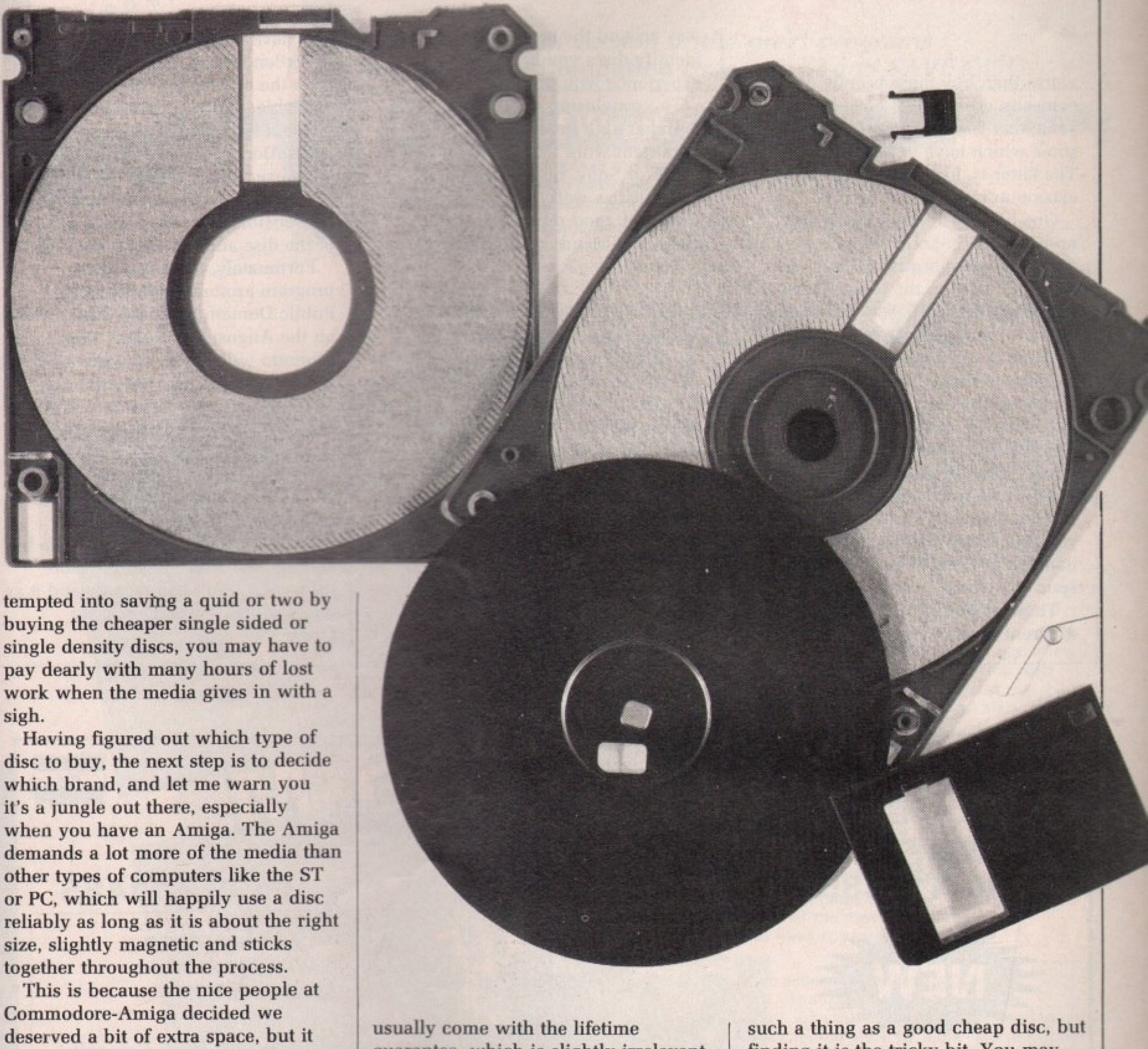
Meanwhile the plastic shell has been moulded, the protective metal cover cut and bent, the simple spring to close the cover wound, and the fleece cut out. It sits quietly inside and is designed to catch dust, fingerprints, smoke particles and other nasties which have found their way on to the surface.

Now it is time for these parts to be put together, but the product is not ready for distribution yet; the final test has yet to be passed. This takes place in another purpose-built tester which can change discs automatically, so no human interference is needed other than supplying the beast with a fresh stack of discs once in a while.

Assuming the disc has survived all the stringent tests so far, the product is now ready for the consumer. Your first contact with the discs is in the shop, but which ones should you buy? Expensive discs are more reliable than inexpensive ones surely? A disc is a disc, they all look the same to me, so what's the difference? What does HD, DD, DS and TPI mean, and what is it to me?

All these questions, and many more come easily to mind when you are looking round your local computer shop. Let's get the definitions out of the way once and for all.

The discs the Amiga uses are the kind called 3.5 inch DS DD, which means Double Sided (as opposed to SS) Double Density (as opposed to SD). Double density may also be referred to as 135TPI which means 135 Tracks Per Inch. Do not be



tempted into saving a quid or two by buying the cheaper single sided or single density discs, you may have to pay dearly with many hours of lost work when the media gives in with a sigh.

Having figured out which type of disc to buy, the next step is to decide which brand, and let me warn you it's a jungle out there, especially when you have an Amiga. The Amiga demands a lot more of the media than other types of computers like the ST or PC, which will happily use a disc reliably as long as it is about the right size, slightly magnetic and sticks together throughout the process.

This is because the nice people at Commodore-Amiga decided we deserved a bit of extra space, but it has proved to be misplaced affection, since the space has been paid for over and over again with failing media. Because of this, the use of proper high quality discs is more crucial to us Amigaoids than almost anyone else.

I have used a lot of different brands of discs, ranging from SKC, through 3M, Maxell, GoldStar and Nashua to BASF. All have performed differently, even though all manufacturers claim they are 100 per cent certified. I have also used a lot of no-name discs of dubious origin, with just as many different results as with their branded cousins.

No-name discs are discs which the big manufacturers throw out on the market very cheaply. These do not usually come with the lifetime guarantee, which is slightly irrelevant, since you'll probably be more anxious to get your invaluable data replaced than the media anyway.

THE branded counterparts are primarily targeted at the business market, since reliability is crucial, and they like the security of the name. The difference between the unbranded and branded discs is purely in the testing because they are being made on the same factories of the same material.

The branded discs have been tested to make sure the product is reliable, and the unbranded is very often not, to increase profit margin.

My own experience is that there is such a thing as a good cheap disc, but finding it is the tricky bit. You may also say that you get what you pay for, but in some cases what you pay is a lot, and what you get is a disc error.

I have had poor experiences with 3M discs, which to my mind is robbery in broad daylight, since they are horrendously expensive. If possible, SKC discs are the worst I have ever used, and you would be well advised to stay clear of them.

On the other, and more pleasant, hand I have had very positive experiences with Sony, TDK and BASF ones, and can wholeheartedly recommend them. GoldDisk and Nashua comes in somewhere in the middle, and you can certainly do ►

worse than buy these brands. When it comes to no-names, I have bought some that were very poor indeed, and some which have never failed me. The latter is, I am sorry to say, the exception rather than the rule.

One helpful hint when you buy no-name discs: Look at them – is the assembly of high quality? Is there a serial number on the back? This very often indicates discs in the higher end of the no-name hierarchy.

When you have found a good reliable no-name "brand", look closely at the disc. Notice the colour and structure of the plastic and the shape of the arrow on the front.

Very often there are numbers moulded into the shell, holding the disc, upside down, cover away from you, the semicircle on the far left-hand side seems to be a favourite spot.

These small but significant differences can help you find your way around the no-name market, and identify discs you have had experience with previously.

The conclusion of all this is : Use branded high quality discs for your important work I recommend TDK, BASF or Sony, but other brands may work just as well. Try and locate a source of good reliable no-name discs, ask friends or try different types.

USE these discs for stuff you can easily get other copies of, like PD software. This way you'll have a reasonably high degree of security while avoiding slimming your wallet to too great an extent. Remember, it is no shame to use no-name discs, actually most commercial software comes on them. I should know, I see a lot of it.

When the grim reaper has come to collect one of your discs it is not too late to save it, or some of it anyway. You have DiskDoctor on the WorkBench disc. This has previously been the only source of disc healing available, and it is no understatement to say it isn't a great pleasure to use.

DiskDoctor has been known to mess everything up and leave you worse off than when you started, so the sensible thing is to make a copy of the disc and use DiskDoctor on it.

Fortunately, there is a better program around, Dave Haynie's Public Domain DiskSalv, which was on the August Cover Disc. This program will not try to write anything to the damaged disc but rather try and pull as many of the files on it safely off on to another disc, your hard disc, ram disc or wherever you want it to go. It will even pull files from a damaged hard disc on to a series of floppies.

This program has saved my life by helping me keep a deadline more than once, and I can recommend it as the best disc – and life – saver around.

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Home Accounts has been designed to make full use of the Amiga's features, giving you the widest range of home accounting facilities available at this price.

The program lets you set budgets and control up to 13 separate accounts, with optional printouts of any data. Within seconds of loading your data disc you can check your budget or any account, and even display or print the data in bar or pie charts.

Day by Day replaces your manual system for diary, business organiser, notepad, planner, reminder and so on.

It's suitable for both business and home applications, including numerous useful functions which serve every requirement.

Among its many features are:

* Calender/diary/planner
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Both of these powerful programs are excellent value on their own, but if you buy this exclusive combination package we'll knock £20 off the combined retail price.

SAVE £8



Trained Assassin

Trained Assassin

RRP £24.95
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This blockbuster combines the best features of some of the most popular games ever to have appeared on the Amiga.

It features five action-packed levels with different varieties of scrolling and gameplay, with the fifth level guaranteed to raise your joystick's temperature by a few degrees (if not your own).

"Trained Assassin is of a standard that could probably survive unaltered in a real arcade – few games could manage that". – **Stewart Russel, *Amiga Computing*.**

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Raider

Raider

RRP £19.95
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Skill and determination are the qualities you'll need in vast amounts if you're going to fully master this game.

Your mission consists of collecting pods by hovering above them and switching on your tractor beam, but all the time you have to take into account the effects of inertia and gravity, controlling your ship as smoothly as possible – to avoid colliding with the planet below.

"The graphics are wonderfully drawn and smoothly scrolled in all directions. Every landscape is a joy to look at and explore... delicate, addictive gameplay". – ***John Kennedy, Amiga Computing.***

TO ORDER PLEASE USE THE FORM ON PAGE 112

Full speed ahead?

A BASIC 68000-equipped Amiga is pretty nippy, all things considered. But where massive amounts of number crunching are required, a little extra speed is always welcome. Solid rendering, 3D CAD and many engineering calculations can take surprising amounts of time.

For this reason CSA has produced the Midget Racer 68020 Piggyback board to cater for more demanding users – available in a myriad of specifications, from a 12MHz system without maths co-processor at £299 to a system with a 33MHz 68882 co-processor for a paltry £1,105.

Why use a 68020 instead of a 68000? Both are very complex chips; they don't have their entire instruction set hard-wired into them. Instead they load instructions from an on-chip microcode store. Hard-wiring would make them much faster – in the manner of RISC chips – but it would make them far more expensive as well. The 68020 also has a much expanded and optimised instruction set, and is a true 32 bit processor.

Considerable time – nanoseconds – is wasted when fetching instructions from microcode. The 68020 has 256 bytes of cache on the chip for fast access to frequently-used instructions. Thus in many cases a 68020 will process instructions faster than a 68000 clocked at the same speed.

The "Midget" tag is certainly apt. The large, square 68020 and the 68881 nestle neatly with some custom logic chips and an oscillator on a tiny board 85 x 70 mm. Some rather clever logic goes on in the special chips. They ensure that the rest of the Amiga sends and receives data at 7.2MHz while the 68020 talks to the 68881 at full speed. This retains a modicum of compatibility, but the down side is that in this case an expensive 16MHz 68020 is needed to give 8MHz performance.

FITTING the beast was very difficult. After an infuriating 20 minutes removing the case of my A500 – where a Torx screwdriver would have been useful – and fighting with the enormous RF shield, I got down to the circuit board. This coruscating gem yielded its processor in under a minute of frantic levering with a 16in screwdriver. Then real problems started.

The board has 64 long pins to fit into the socket vacated by the 68000. They are long because it has to straddle the rom, which doesn't like being crowded.

The pins are quite thick and although spaced correctly, they are a shade too large to fit easily into the socket. The manual advises the use of "moderate locating pressure".

Obviously moderate must mean the entire weight of someone large and not altogether thin, leaning on a pair of freshly laundered Y-fronts cleverly folded over the board in order not to cause serious puncture wounding – from the sharp solder joints on top of the board – to the hands of the aforementioned large person. 'Cos that is what it took me to fit it.

And even then the keyboard wouldn't go back properly, so the whole testing time had to be done



without a cover on the machine.

The accompanying disc contains a few programs, topped up with files off the Workbench 1.2 distribution disc and some C source code. The 68020 auto-configures, along with the maths co-processor, although for some reason the distribution disc I received looked for a 68030 and 68882.

There are three useful programs and two benchmark tests. The three useful programs switch the cache on and off and tell you whether it is currently on. These could have been combined into one, but there must have been a reason for it to be otherwise. Apathy?

The benchmarks are a hoot. One runs on a 68000 and doesn't use a maths co-processor; the other uses native 68020 with 68881 code. They both produce the same output – a configuration test, an integer maths test and a floating point maths test.



Stewart C. Russell pushes the pedal to the metal and finds a processor accelerator that doesn't live up to expectations

The floating point test, predictably enough, produces various images of parts of the Mandelbrot Set. Quite why so many people place great importance on something which looks like a cross between a turtle and a psychedelic road accident I'll never know.

On a standard A500 the 68000 test tells you that you're running at 100 per cent the speed of a standard Amiga, that the effective ram speed is pitiful – about 4MHz – due to wait states and custom chips, and that basically things go better with a 68020 and a side order of 68881.

THE 68020 test tells you that you have a speed increase of 1.6, or 60 per cent for honesty, that the ram speed is even worse, and that you can manage around 85 kFlOPS (thousand Floating-point Operations Per Second), which is 15.8 times the speed of a standard Amiga. What do you believe?

CSA claims that certain programs use enhanced set-up for enormouse speed increases. X-CAD Designer is one such package, Sculpt 4D is another. A fairly complex drawing of 2,047 entities was used as the X-CAD test, with loading and re-drawing being timed with and without the board.

Loading time was promising. Without the board it was 37 seconds, with it 34. Re-drawing threw up the first anomaly. Without the board the screen was regenerated in 5.5 seconds. And with it 6 seconds!

All tests were done in near identical conditions; no tests or results were conveniently forgotten to alter the performance of either set-up.

In order to test the board's floating point speed, a little HiSoft Basic compiled program was employed which utilised the Motorola FFP routines in plotting 25,000 points of the Attractor of Henon. This mathematical figure gets more complex as more points are plotted, yet always ends up looking like a rather dejected banana.

Again, there was a surprise. The vanilla 68000 clocked in at 35.5 seconds while the Midget Racer took ▶

◄

7.8 per cent longer – 38.5 seconds.

Serious disbelief began to set in, so as a last floating point resort a high speed FFP Mandelbrot Set plotter was given the run through. Some sanity returned, but not much. Without the Midget Racer, 36.5 seconds; with it, 33.

The final numerical test was to see how both systems handled that most unresponsive lump of code, AmigaBasic. In plotting a 12-deep Dragon Curve (another fractal, sorry) using short integers throughout, it became very responsive indeed. Where the 68000 took an awful 82.75 seconds, the CSA Midget Racer crawled in, beaten, at 92.5.

In explaining the AmigaBasic result, ATH – the UK distributors – said it was "basically just one of these things". As they were very reasonable in still being around at 4:57 on a very hot afternoon and had some truly bad telephone hold music into the bargain, only a cad would have harped on the other results.

The final test was the fairest and the toughest. Four games – Silkworm, Trained Assassin, World Class Leaderboard and Backlash – were grabbed at random and attempts were made to load them. The first two didn't, at all. The others did, but both showed at least an 80 per cent speed increase and consequently became utterly unplayable.

UNLESS you really have to have a 68020 for some reason other than for performance or compatibility, the CSA Midget Racer board cannot be recommended.

If you are in a professional situation, where time really is money when rendering, draughting or Fortran programming – because the only 68020/68881 devoted compiler is Fortran/77 from Absoft – Commodore's card for the A2000 gives better value. It may be at least three times the price – because it includes 32 bit ram, general niceness, and the ability to use the 68000 when you need it – but anything's better than a Midget Racer.

REPORT CARD

CSA Midget Racer (with 16MHz 68881)
Advanced Technology Holdings 0923 817548
£475

EASE OF USE
Very difficult to fit on an A500. Raises gross compatibility problems.

SOFTWARE
Very little, and almost useless. No libraries or includes.

SPEED
Often slower on 68000 code, and very slow as 68020/68881 systems go.

VALUE
No value speedwise and zero prestige value because it is hidden inside the case.

OVERALL *13%*

A very little speed increase for a lot of money.

Messing with macros

Peter Ceresole stops worrying and learns to love the guru

A MAN turned up with three cardboard boxes, and there was the Amy. I'd asked for some games and graphics demos, because that's what the Amy's supposed to be about. Right? Now, I wondered, after the Amstrad CPC, would this stuff blow my socks off? And yes, I guess that it did.

The Wild Copper demo was totally amazing. Scroll and move and whizz about... I tried Outrun. Scroll and move and whizz about, yeah... After a time I realised what these wonderful 16 bit games and graphics had something the 8 bit games had too. It's called, er, boredom. That's it. No fun. Kind of naff. Good time for the programmer, zilch for me.

Let's face it, games are nothing. Graphics are fine for a moment of "ooer" and then they're just graphics. You admire what the programmer's achieved, yes. Like a dog whistling the theme from Neighbours. The performance is amazing, the result zero. It's almost more fun playing chess.

But wordpros, now that's another story. The programming is great, but the fun is real. A good word processing program – and I believe that Protext is a very good one – becomes an extension of your thought. Not straight away; you have to learn to fly the thing first, but as you find that you don't have to *remember* that Ctrl–E clears the line after the cursor – you just do it without thinking – then you and the program grow together.

I remember starting with Protext on the CPC. It's hard to believe, but that version goes almost as fast as the Amiga, even though its driving a funny little Z80 processor. But compared to my typing anything's pretty well instantaneous, and the speed at which things happened was quite intimidating.

Hit Ctrl–Y instead of Shift–Y and... what the heck was that? The whole text vanishes. Very frightening after an hour's script writing. Still, it's a good reminder of the second file and how to reach it. And after a while it all begins to feel really friendly and familiar. Tickety-boo.

Which is when you can start making it into *your* program.

YOU can start with Config, which is very friendly and full of menus and things. For instance all programs come set up for 66 line paper, which is a foolish American size, whereas here we all – in the spirit of Bruges of course – use A4, which is 70 lines long. I also hate right-justified text, especially in letters. They look as though they were written by Robocop.

Changing those two is a piece of cake. I was going to change the colours. The CPC and PCW have high resolution mono screens, and I'm used to working with black text on a green background. In fuzzy Amy medium-res though, I think the Protext colours are about right.

But the essence is to go into Config and play with it. Browse. Think of all the things you might want to do, and do them. If you're worried about not being able to get back to what you had after some foolish experiment – what, *magenta* ruler lines? – then before you start, copy the file PROTEXT.CFG on to another disc. In an emergency you can always copy it back on to your program disc.

However, Config is the tiniest beginning. You can change the operation of Protext your way until you are both singing in harmony. The program becomes the house you built, with all the comfort and relaxation that that brings.

PROTEXT comes with a programming language of its own, and it's been made unbelievably easy to use. You hardly ever have to touch it as a language, but you can start to make things happen any way you want, no sweat.

For example, how about saving as you go? "They" say that Protext v4.30 will have a periodic save built in,

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especially useful for hard drive users. Deeply wonderful, but Real Soon Now, so No Use to Us.

I've had a couple of meetings with the guru already on this machine, always from Workbench. Protext so far has been bulletproof, but I'd rather have something safely in the oxide, so I've set up a simple little macro, save-and-continue. It'll always run from edit mode, so I started from there.

After hitting Ctrl–F1 to start recording, I assigned it to Alt–S and pressed the keys *<Esc> S <Return> <Return> <Esc>* in that precise order, and then finished the recording with Ctrl–F1 again.

And that's it. Any time I'm thinking and not typing, I go Alt–S. Seconds later the piece so far is saved and I'm back exactly where I was. All it needs is for you to give the file a name some time before you first save. In fact the best time is before you start by using the Protext Name command.

Obviously, if you want to keep these macros, use the SaveKeys command – SVK for short – to save them.

You don't have to think of everything at once; you can add a definition here, another there, and build up a useful set in Protext.Key, which is the default key definition file. If you want an alternative set, for instance for standard business phrases, save it in Stuffy.Key. Again, if you feel you might screw up, you can always copy Protext.Key to another disc before you start. The important thing is to play without inhibition.

Another really obvious macro is *DEL #?.BAK.* (Lord, hash-question mark? There really is life on Mars, then). You can set Protext so it doesn't make back-up files by using Config. Personally, that would make me feel terribly insecure, but it's still nice to be able to zap all the .BAK files occasionally. So into F3 it goes. That's needed most often from command mode, so you record the macro from there.

I recorded another one from edit



Most of the features of Protext discussed in this article can be used with the version of the program which was given away on last month's cover disc. Back issues are available from Database Direct on 051-357 2961 or use the order form in the back of this issue.

mode – *<Esc> DEL #?.BAK <Return> <Esc>*. It runs from Alt–B (Back-up? Geddit?) and works nicely with Alt–S (save-and-continue). The difference between these two is that the first one lands you in command mode, the second in edit.

SIMILARLY, if you use some printer control codes a lot, for instance *Italic,* then you can put that on Alt–Shift–I. It saves a key stroke, and that counts when you're motoring along.

But there's a lot more you can do in this line.

Suppose you want to save a ruler line. Say you've fiddled about getting just what you want, for one special bit of layout, then you go back to alternating between two basic rulers, which is what Protext is set up to do instantly.

If you want your special layout again, you can go back, find the ruler – you could leave a place marker there if you felt like it – put block markers at either end and copy it to where you want it. Now that's what I call a boring way of doing things. Much better to store it where you can get it back – and a good place is above the first ruler line.

So start your macro recording (Ctrl–F1) and assign this trick to, say, Alt–Shift–P, a special version of Put. Assume you'll be starting somewhere in the ruler line you want to save. Now place a block marker at the right-hand end of the line then at the left-hand end. Put in a place marker so you can get back there, and use number nine in case you've another eight in use.

Go to the top of the document and make an empty line, then copy your ruler line into it. Kill the block markers.

Go down one line, and copy the default ruler to below your stored ruler with Ctrl–R. This is necessary in case you're using the default ruler for your text. Then go back to place marker nine and erase it. Go down a line, and that's it. Figure I(a) shows the sequence of keypresses and what each one does.

Now you've saved the line, you can get it back using (surprise us all) Alt–Shift–R as a special version of Retrieve. The keypresses for the macro are shown in Figure I(b).

That brings the line back. In fact, any kind of line can be stored there,

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KEYPRESSES	RESULT
Ctrl-→	Go to end of line
F9	Place block marker
Ctrl-←	Go to beginning of line
F9	Place block marker
Ctrl-@ 9	Set place marker number 9
Ctrl-[	Go to top of document
Ctrl-I	Insert a blank line
F10	Move block
Ctrl-K	Remove all block markers
Shift-Return	Move to left margin of next line
Ctrl-R	Copy previous ruler but one
Ctrl-@ 9	Go to place marker number 9
Del	Delete character at cursor
Ctrl-Return	Move to left margin of next line

Figure I (a)

KEYPRESSES	RESULT
Ctrl-←	Go to beginning of line
Ctrl-@ 9	Set place marker number 9
Ctrl-[	Go to top of document
F9	Place block marker
Ctrl-→	Go to end of line
F9	Place block marker
Ctrl-@ 9	Go to place marker number 9
F10	Copy block
Ctrl-K	Remove all block markers
Ctrl-→	Go to end of line
Backspace	Delete character before cursor

Figure I (b)

◀ not just a ruler line, but anything else is likely to be printed or otherwise acted upon and could give you a lot of trouble, so beware.

These macros may look like a lot to set up, but they're a total piece of cake to use – it all happens in about three seconds – and, much more important, *they're fun*. That's the thing. But not nearly as much fun as this next one.

YOU have to imagine the scene. You've been writing to an important prospective client. This is a person with great potential. Your future relationship is at stake. You've deployed the best of your communication skills. The letter is crawling but not obsequious.

You've taken great care not to split any infinitives, nor to actually tell any lies. You spell check (oh Lord!) and then... there's the envelope. The address is by now incomprehensible, the postcode endless. Wouldn't it be nice if you could just winkle it out of the letter and bung it up there, in the second file, ready for printing?

This one assumes that the second file is empty and that the letter has the addressee's name and address on the top left. Even if, as I do, you have your own address on the top right, this macro will extract the one you want.

Here is what to do. Assign it to Alt–Shift–M (for Mail):

Go to the top of the file. Depending on your standard letter layout, go down to the first line of proper text, as opposed to stored codes and ruler lines. Put in a block marker.

Go down enough lines – I've used eight in Figure II – to cope with any address, then go to column 35 and put down another block marker.

```
>                                                   R
>sm 11
Miss Margaret Hilda Roberts                 Peter Ceresole
"Tina"                                    512 Protext Lane
Market Lane                                       A500 1FF
Grantham
GR4 0ALT

>-------!-------!-------!-------!-------!-------!-------!-------!----R
"Well hello there, I'm Macro Man!"
```

Figure II

Go into box mode with Ctrl–B. Then swap to the second file and lay down the stored commands to print on *your* envelopes with *your* printer. For me these are *">sm 25", ">tm 10"* and *">pl 25"*, but you can make them what you want.

After this, swap back to the first document and bring the block across from the other file with Ctrl–O, then go back to the letter and do a clear up by killing the markers and switching off box mode. Finally, you hop back to the second file and go into command mode, ready to print out the address.

If the block you copied was a little too big, it's easy to go back and trim a couple of lines off the bottom with a few mindless key strokes. It takes about seven seconds to work. It's great fun to watch. The keypresses are detailed in Figure III.

KEYPRESSES	RESULT
Ctrl-[	Go to top of doc
Ctrl-G L3 Return	Go to line 3
F9	Place block marker
Ctrl-G L11 Return	Go to line 11
Ctrl-G C35 Return	Go to column 35
F9	Place block marker
Ctrl-B	Go into Box mode
Ctrl-Y	Switch docs
>sm 25 Return	Side margin of 25 chars
>tm 10 Return	Top margin of 10 lines
>pl 25 Return	Page length of 25 lines
Ctrl-O	Copy block from other doc
Ctrl-Y	Switch docs
Ctrl-K	Remove all block markers
Ctrl-B	Exit Box mode
Ctrl-Y	Switch docs
Esc	Go into command mode

Figure III

The important thing with all these macros is to clean up after you. In this case, you leave the letter file the way it was at the start of the operation. By putting down a place marker you could even return to the letter exactly where you left it, but I've found I'm happy with the macro the way it is.

Both on the Amstrad CPC and PCW I use it constantly, but on those machines there's no macro recording facility. You have to program it in Basic or in a Protext Exec file, which is considerably more trouble initially although it works just the same. I suppose the price you pay on the Amy is that Protext is more than 200k long, whereas in CP/M (yawn) it's about 50k, and three 16k roms contain the program in Amsdos.

That's just the beginning; you can macro till the chips come home, or you run out of memory, which is the only drawback. You could store the front and end of all possible letters as macros. I've found it simpler to use standard files for that. But obviously, if you've got something to write that'll need you to lay down the word "homozygotic" more than four times, it might be worth making a temporary macro of it.

Macros make the program yours. I first learnt most of this from David Foster, who wrote articles that opened my eyes to the possibilities on the CPC and PCW.

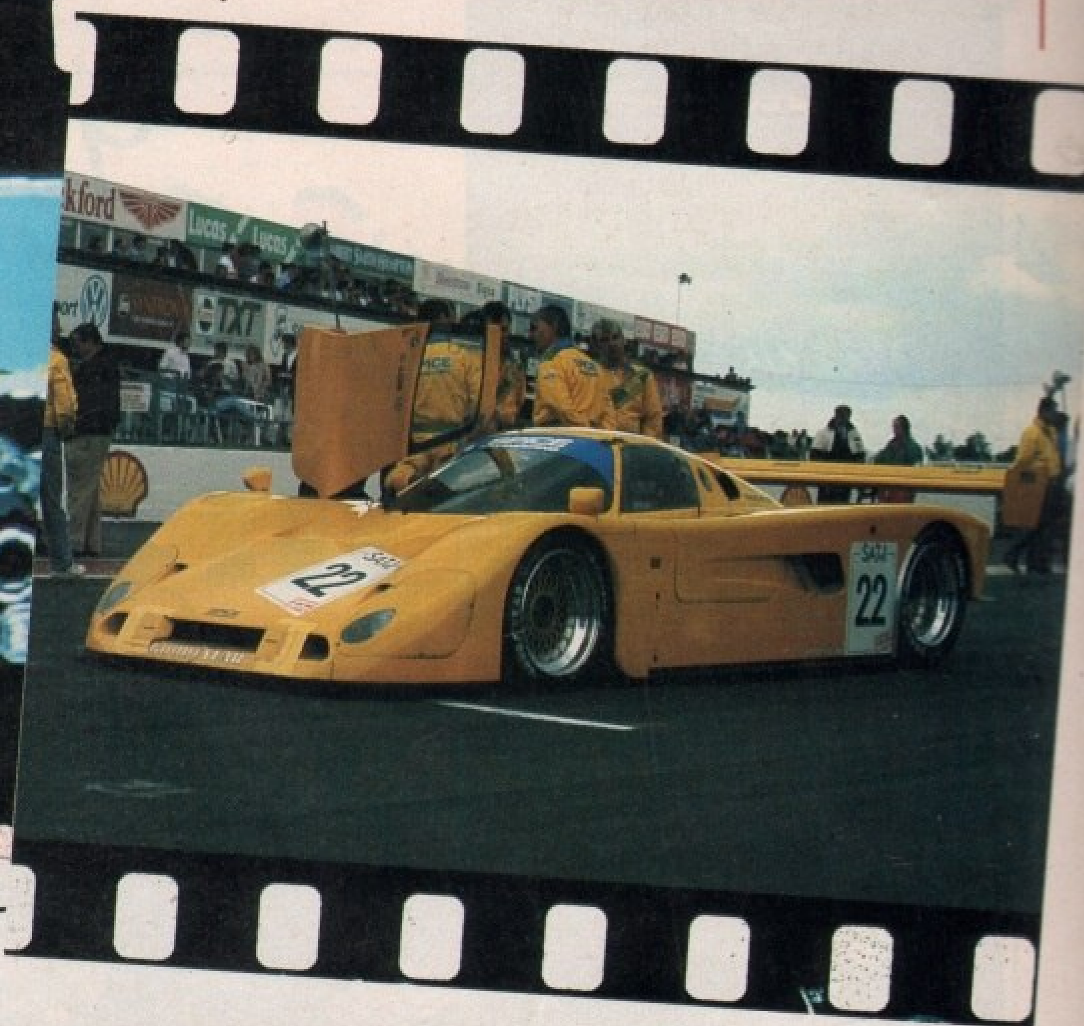
But there are other great wheezes. Next month we'll have a go at some philosophy with printer drivers and exec files. In the meantime, if you have an Epson compatible printer, try putting the following at the top of a file, and then print it.

```
>oc 27 65 6 15 27 83 1
```

And may all your bugs be little ones.

● *All the macros shown in this article are on the cover disc in the Protext.key file which is in the Mucking-with-macros drawer.*





WIN A TRIP IN THE HOT SEAT

You can experience Silverstone at high speed

YOUR skin crawls with a tingle of excitement as a racing car comes into view. The wonderful, monstrous noise, the sheer power and beauty of a machine designed purely to go very fast. Even watching the cars lined up on a grid makes you shiver with anticipation.

Motor racing is a sport of contrasts. While the dicing is exciting and the racing frantic, the driver is keeping as cool as possible, concentrating on the smoothest and fastest line.

Artronic wants to give you a taste of the action. Everybody will have the chance to get behind the wheel with Fast Lane. And one lucky reader will have the chance to experience Silverstone at high speed for real.

Artronic has arranged a fun day at the British Grand Prix circuit, a trip around the magic three miles taking Copse Corner and Maggots Curve at incredible speeds, followed by lunch and a visit to the nearby Spice factory where the car Fast Lane simulates is built and tested.

The Spice '89 Group C1 racing car is an astonishing vehicle. For several years Spice has dominated the C2 class but now they have moved up into the big league where they are taking on the likes of Porsche, Jaguar, Mercedes and Aston Martin. Racing for between three and 24 hours at up to 200 mph the endurance races are a test of skill, reliability and performance.

Your test is one of knowledge. Answer three questions correctly and you could be on your way to Silverstone.

(1) Racing cars used to have national colours. Italians red, French blue, Germany white or silver. What colour did British racing cars wear before the war?

(A) British Racing Purple ☐
(B) British Racing Pink ☐
(C) British Racing Green ☐

(2) Artronic has produced a ray tracing program for the Amiga. What is it called?

(A) Ray-Tracer ☐
(B) Solid Modeller ☐
(C) C-Light ☐

(3) One lap of Silverstone is 2.970 miles. If a car completes a lap in 1 minute 16 seconds what is its average speed?

(A) 119.00 mph ☐
(B) 140.68 mph ☐
(C) 201.22 mph ☐

Send your entries to:
Fast Lane Compo, Amiga Computing, 2nd Floor, North House, 78-84 Ongar Road, Essex, CM15 9BG.

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Address..............................
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....
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Protext is acknowledged by many as THE word processor for most home micros, and the Amiga version is no exception. What you get with Amiga Protext is a powerful workhorse with a proven track record. Plus a saving of £20 off the retail price of the new version 4!

Some of Protext's features

- Automatic reformatting of text
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- Can spell check as you type
- Over 70,000 word English dictionary
- Macro record mode
- Footnotes
- Menu driven configuration program
- Auto indent for program editing
- Line drawing
- Fast and flexible find and replace
- Powerful mailmerge facility
- Box mode for creating columns
- Edit two files at a time
- Keyboard or mouse operation

Press comments

"For power and value for money, I don't think that Protext can be beaten. It can be used as simply as you choose, or can handle the most complex mailmerge routines... in short, it can be what you want it to be". – **Micronet**

"Anyone with a professional interest in words is likely to find it pays dividends". – **PC Business World**

"It is a refreshing change to review an inexpensive WP package which lives up to every expectation". – **Which PC**

"Protext deserves to be the system by which all other word processors are judged". – **Your Computer**

"The great strength of the package is its ease of use". – **CPC Computing**

"Deserves very serious consideration". – **Amstrad Professional Computing**

'...merely the best word processor for the Amiga'

– Reviewed in Amiga Computing, January 1989

ORDER YOUR COPY TODAY, USING THE FORM ON PAGE 112

Shining example

Alastair Scott brings his fantasies to life with a ray tracing program that doesn't burn a hole in your pocket

UNDERNEATH the physics department of Edinburgh University is a £1.7 million supercomputer. Its favourite tour de force is ray tracing. Thanks to 200 transputers and a mere 800 gigabytes of memory it can draw a picture of three shiny spheres on a chess board in half a minute. The Amiga can't reach such lofty heights, but it is the first home computer powerful enough to do ray tracing at all.

To produce a ray traced picture you need a scene made up of various three-dimensional bodies and one or more light sources to illuminate it. The computer then takes over, using complex mathematics to work out how intensely each pixel will be illuminated and the position of any shadows. After much number crunching you should see a reasonable approximation to what the scene would look like in real life.

C-Light claims to be able to do this. For your £50 you get two discs and a comprehensive ring-bound instruction manual. The main disc holds three programs – the configuration program, the scene editor and the drawing or rendering program – all accessed from Workbench; if you only have 512k you will have to close every window possible before attempting to run the drawing program.

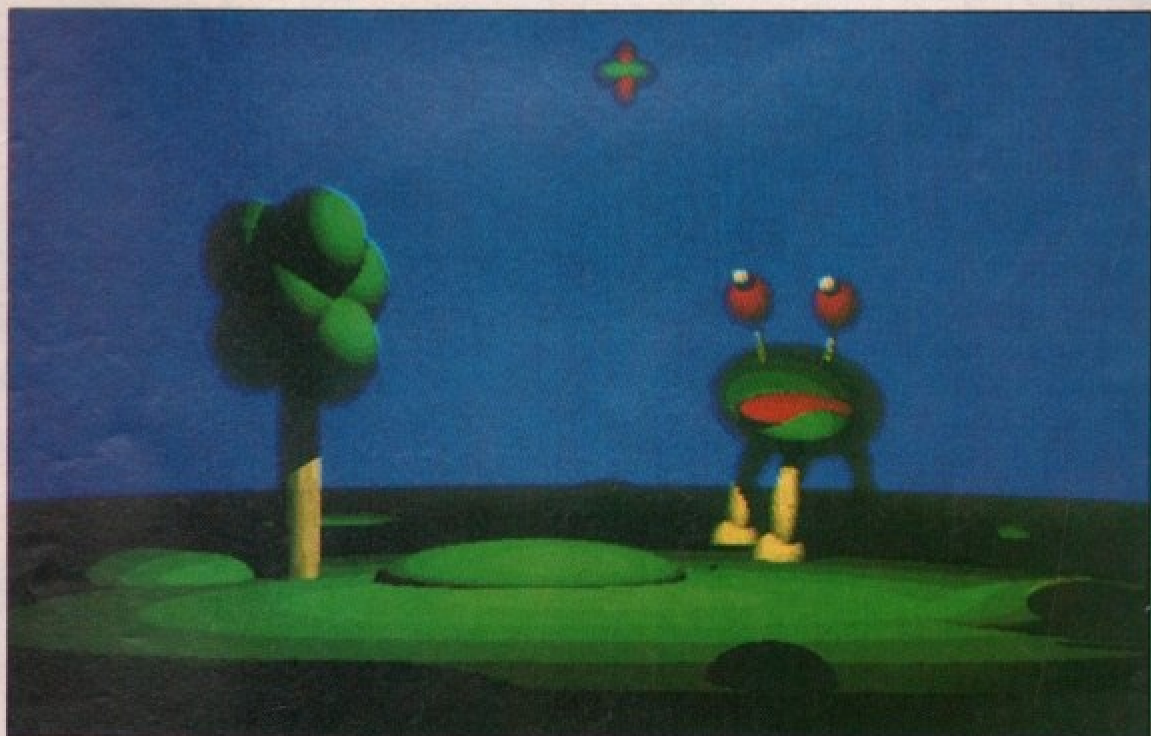
The maths libraries are read from the Workbench disc, so it is sensible to use the faster 1.3 ones. And two disc drives would be a help.

The configuration program lets you toggle between NTSC or PAL screens, lets you choose overscan or not (underscan?), and whether you want interlace on or off. It works rather like Preferences, saving a short configuration file which is used the next time you boot up the program.

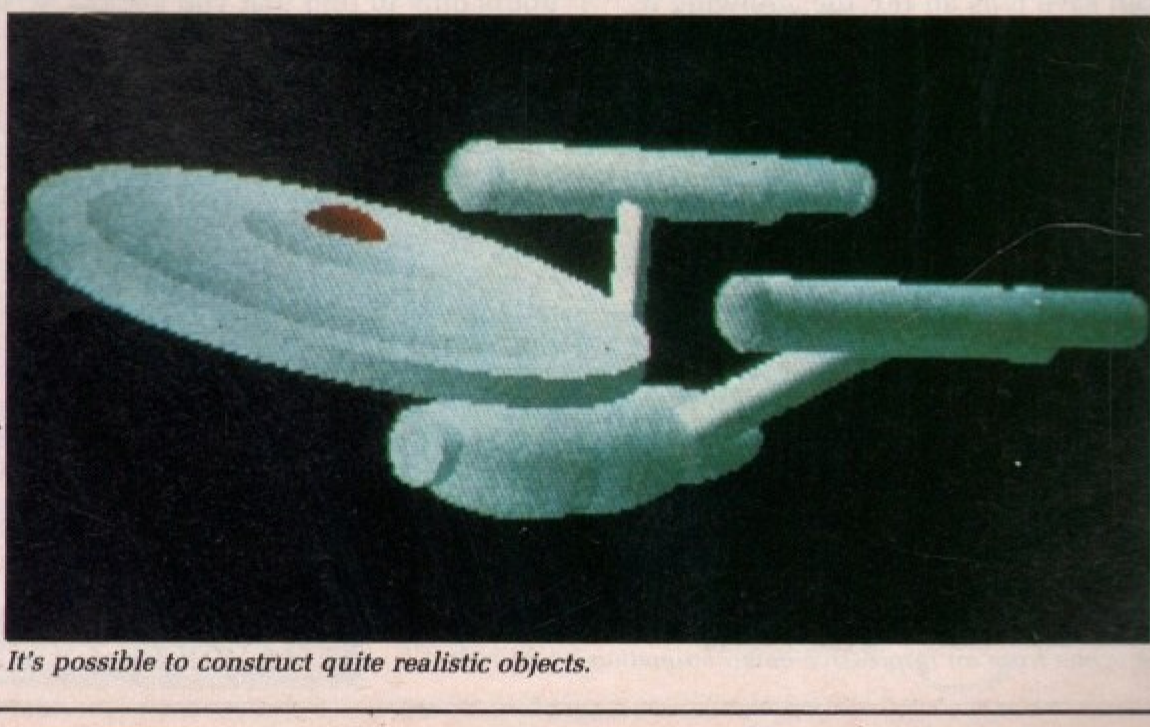
The scene editor is where you set up your picture, which must be made up of combinations of three basic shapes – cubes, spheres and cylinders, although cones and hemispheres are promised in future upgrades. This review is of version 1.03.

You select the shape you want from a list of gadgets and the shape's outline is displayed on screen. You use the mouse to move it in the x and y directions, click the right button

►



Sci-fi scenes are easy



It's possible to construct quite realistic objects.

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and move the mouse up and down to move your shape in the z direction – that is, in and out of the screen. Clicking the left button brings up a requester which allows you to alter the shape's size and rotate it about all three axes.

SHAPES can be in one of three main user-defined colours – the program calculates all the intermediate shades – or it can work as a mirror. Once satisfied that all has been done to size, position and colour your shape, you move on to the next one and repeat the process. There are re-size and delete options if you change your mind about a shape you positioned earlier, and you can change the main colours and the size of the whole scene.

You are allowed up to 170 shapes. Once finished, you set the positions of your eye and of the light sources – again, up to 170 are allowed – and then another small file is saved to disc. You then exit to Workbench and run the drawing program, which loads the file you created with the scene editor, then asks you whether you want shadows, which slow down drawing, or anti-aliasing, which is a method of softening the edges of jagged objects.

Using sliders you can change the intensity of your light sources, of the background light and the blending of colours. Lastly, you click the Go! gadget, the screen clears, and the picture begins to be calculated and drawn. You can interrupt it at any time if it looks as if it's going wrong.

When the drawing is finished you can save it as an IFF file, allowing it to be manipulated by art programs.

Included is a public domain IFF viewer which allows you to see your efforts (and the demonstration pictures) without loading C-Light.

ON the second disc, complete with some stunning examples, is a pair of programs which allow you to string several frames together to create animations. To use them properly you really need 1 meg and two disc drives, plus lots of free time because each frame must be designed separately using the scene editor.

There is an option which allows stereo pictures to be viewed using a most suspicious-sounding contraption (not supplied) called the Haitex 3D LCD Shutter Glasses, which *Amiga Computing* reviewed back in October 1988.

My description makes designing a picture or animation seem easy, but there are problems. The scene editor is spoiled by going overboard with Intuition. It would be easier at times to type the size of an object or its angles of rotation in the form 100, 50, -50, but you are not allowed to, the figures *must* be chosen via the laborious and frustrating use of sliders.

Secondly, positioning a ball is error-prone. It often lags behind the cursor and keeps moving after you move the cursor away to do something else. Again, it would have been helpful to provide an option to type in coordinates and see the result before accepting or rejecting it.

The drawing program is excellent, actually *doing* the drawing is where the main problems lie.

There is no error checking. This may be too complex to implement, but it is most annoying to wait four hours only to find that you accidentally put your single light source behind instead of in front of a big shape and that all you can see is a shadow on a dark background. Two other omissions which are to be rectified in future upgrades are Halfbrite and HAM.

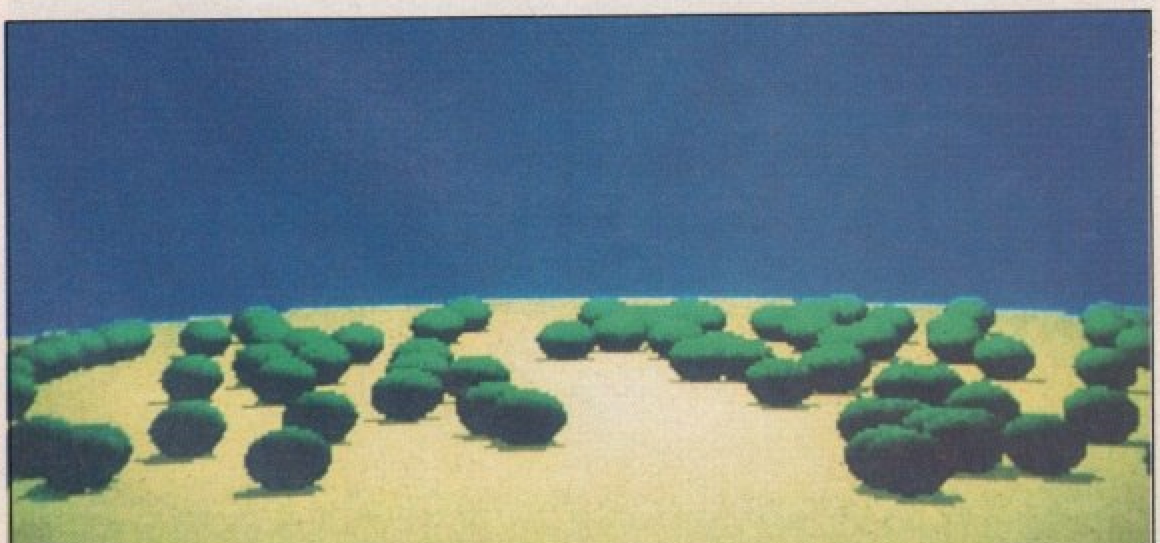
The big difficulty, which is not the program's fault, is speed, or rather the lack of it. Artronic claims that time to draw pictures varies between two hours and four days and this is broadly true. For example, a picture with one light source and one ball – the quickest shape to compute – in 640 x 256 resolution with no shadows took 25 minutes. A similar picture with nine blocks (a la Stonehenge) and shadows took six hours.

BECAUSE of the amount of trigonometry needed to calculate each pixel, the only way to speed the program up would be to buy an accelerator board with a maths co-processor which could take advantage of the fast 1.3 maths libraries. Failing this, set the program running before you go to bed and see what you get in the morning.

The results can be impressive. In fact too impressive to be true, because ray tracing assumes that a surface always reflects and refracts identical intensities of light, which is an over-simplification. A real surface reflects, refracts and absorbs relative intensities depending on the angle which the ray makes with the surface.

Radiosity – second generation ray tracing – uses real surfaces, with softer and more realistic images as a result. Unfortunately it is so formidably complex that it can only be implemented on supercomputers.

Or will Artronic prove me wrong?



A scene from an impressive demo animation

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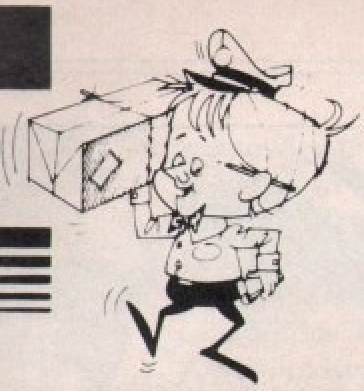
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OVERALL 76%

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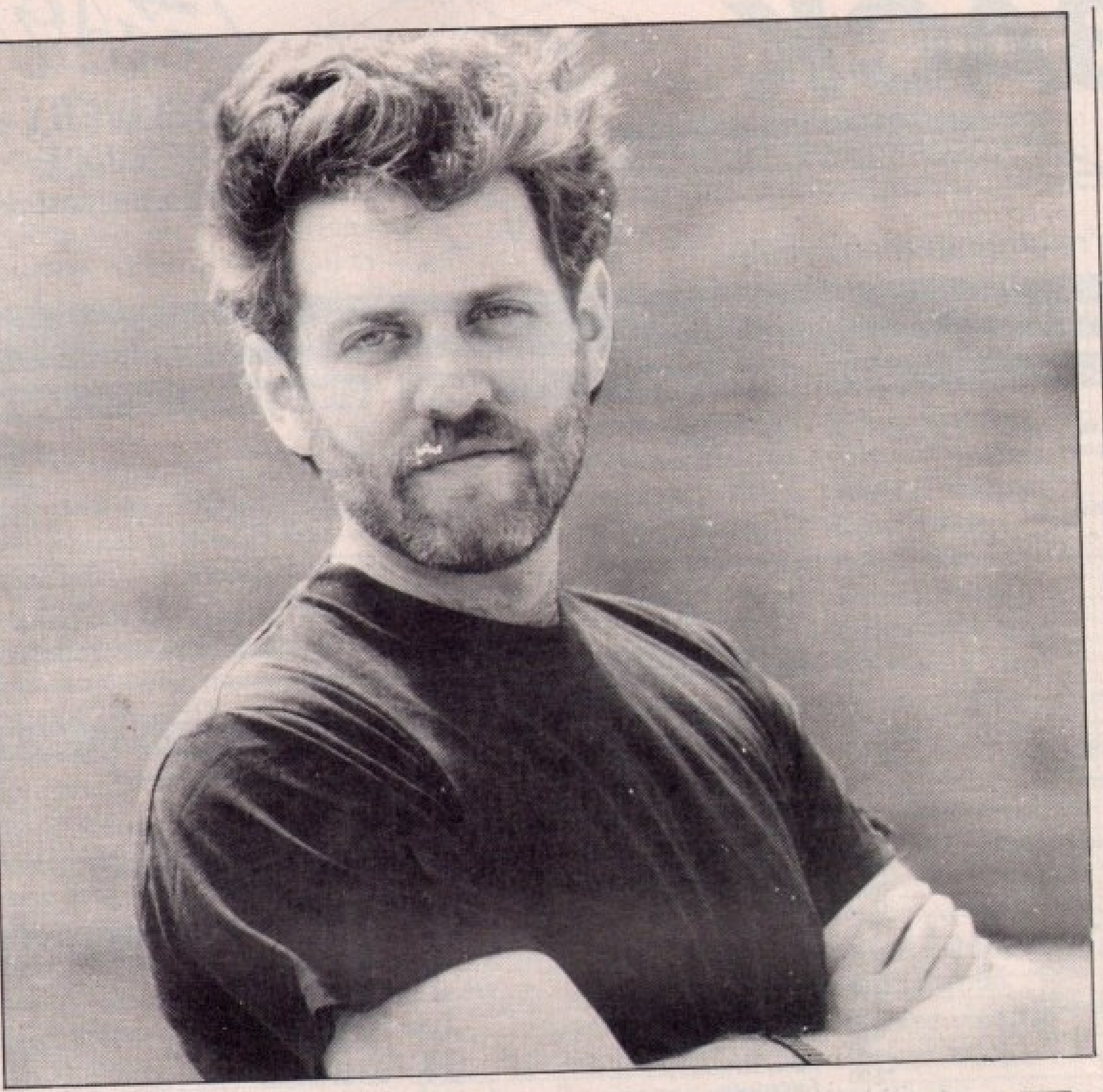
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(or 28kHz) unless you add a speed-up board and some 32 bit ram, meaning only A2000 owners need apply. While 28kHz isn't all that bad, dedicated systems are starting to offer sampling rates as high as 38 or 44.1kHz. As with bit-path size, a higher sampling rate translates into better sound quality. Although the human ear can only hear 22kHz you need a better rate for true quality. Compact discs sample at 44kHz.

At least four companies – Karl Denton Associates, Wavetable Technologies, ECT Sampleware and Datasound Inc – produce libraries of sampled sounds on disc from acoustic and orchestral instruments to electric guitars, synthesisers, drums and special effects.

The advantage of these is that they're no fuss. Just pop in the disc and play. They are particularly convenient if you don't have room in your bedroom to fit a 60 piece orchestra. The disadvantage is that although editing software allows you to modify existing samples significantly, there is still a limit to how far you can stray from the original sound.

The only other solution is to sample your own sounds.

Smash and

Dean Friedman, rock star and musical magician, tunes his ears to the quadraphonic delights of the Amiga

DIGITAL editing is what makes your A500 the most flexible musical instrument you are ever likely to buy. Although it doesn't say it anywhere on the box, your Amiga is a four voice polyphonic synthesiser and sampler – not all that different from dedicated commercial ones like the Roland D50 or the Ensoniq EPS.

The only real difference between your Amiga and dedicated commercial samplers and synthesisers is the Amiga's slightly lower bit-path and its fewer number of voices. Today's samplers and synths have sample word lengths of 12 to 16 bits, whereas the Amiga only offers eight.

A higher bit-path provides a wider dynamic range and, as a result, better sound. Most commercial synthesisers and samplers offer between 8 and 32 voices. The Amiga, with only four, can be limiting in certain musical situations, such as trying to compose multi-section orchestral arrangements.

But for creating sketches of arrangements, or for the kind of sparse instrumentation typical of many of today's pop records, the Amiga is perfectly adequate.

Another important issue is the Amiga's sampling rate, the number of times per second that a real sound is digitised. The Amiga has a effective maximum sampling rate of 28,867Hz

Dean Friedman is an expert on computer music, on the Amiga particular. Based in the US, he runs the New York School of Synthesis. Dean has had a number of chart hits including Lydia and Lucky Stars. He also wrote the title music for the television series Boon.

MORE than half a dozen audio digitisers are available for the Amiga at the moment, all offering comparable audio digitising features.

An audio digitiser is a small box with accompanying software that attaches to your parallel port. In the box is an analogue-to-digital converter which changes the sound into a standard Amiga IFF file, allowing you to import your samples into almost every music program.

The analogue input to the digitiser can take the form of either an acoustic sound like drums, or voices captured with a microphone from a cassette deck. You can solve the orchestra in the bedroom problem by buying sound effects records.

Typically, a user will select the optimum sampling rate, the volume and the desired length of the sample

according to available memory. Once these values are set, you place the digitiser in sampling or record mode and capture a sound.

The whole process is not unlike traditional (analogue) tape recording. You strive for a clean sound, a good signal-to-noise ratio and an accurate performance of the sound being sampled. The real difference becomes apparent after the sound has been recorded. What makes sampling – otherwise known as digital recording – so powerful is the degree to which you can edit your sound once it has been captured.

Almost all sample editing programs share some common features: They offer a graphic display of the sampled waveform, complete with zoom features, which can be edited using cut and paste operations by clicking and dragging with the mouse.

Samples are looped to extend their sustain lengths. This is a way of turning a 2 second sample into something that can be performed for 10 or 20 seconds, or even longer. It makes performance of a sample more flexible and it conserves memory.

grab

This trick is used to good effect in the demo music on this month's cover disc. Other common sampler edit features include waveform merge and mix, sample reverse and cross fades.

All these features enable you creatively to alter and modify your original source material in a number of useful and interesting ways. Cutting the attack out of a piano note can yield an unusual string-like sound. Maybe you want to hear what it sounds like when you merge a saxophone with an oboe? (You get a Saxofobo.) Remember, once your sound resides in the digital realm almost anything is possible.

Once you've built up an impressive sample library of your dog barking, the door slamming and your kid brother burping, what do you do with them?

Well, because Amiga samples are stored in standard Amiga IFF format, any can be employed in most music applications. Almost all Amiga sequencer programs – KCS, Dynamic Studio, Soundscape and friends – allow you to trigger samples directly from within the sequencer program.

String quartets, pop arrangements, horror film soundtracks complete with screaming special effects, can all be sampled and sequenced directly into your Amiga and played back out of its own stereo outputs.

PC owners have to lay down big bucks to buy Midi cables and extra samplers and synthesisers in order to create music with their computers; *you* have a choice.

If you want to go the full blown Midi route, just plug an interface into your Amiga and go shopping. But if you're still getting your feet wet with computer music and aren't ready to shell out another £500 to £5,000 for additional synthesiser or sampling modules, all you need to create complex polyphonic digital recordings is already crammed right into your Amiga.

In addition to music packages that trigger audio samples, more and more non-musical applications have started using the Amiga's internal sampling ability. Several new video and animation programs such as MovieSetter and PageFlipper have begun offering the ability to trigger samples sync'ed directly to graphic sequences and animations.

These products are just a few examples of applications that are finally beginning to tap the full potential of the Amiga as a multi-media workstation.

PERHAPS the best and most obvious proof of the Amiga's impressive music-making abilities are the digitised soundtracks that accompany more and more of its most popular computer games.

Some people are reluctant to acknowledge that the Amiga was designed to be the world's most powerful game computer. That's the real reason it comes out of the box with enhanced graphics and audio capabilities. Lately this aspect of the Amiga's history has been downplayed in a bid to position the machine as a serious business computer.

Well I'm sure Commodore would be delighted to convince the business community that the Amiga is a respectable piece of hardware, suitable for even the dullest business applications.

But in the meantime anyone who has ever experienced the Amiga's incredible animation and sound generting features on a fast paced shoot-'em-up or multi-levelled adventure game needs no convincing as to the Amiga's claim to being the premier game machine on the planet.

So if you're still listening to your Amiga's audio output through your monitor's tiny speaker – shame on you! Plug the stereo outputs into a good hifi system, boot up Firebird's Savage and make sure your shoes are tied tight or the sound'll knock your socks off.

And then you tell *me* how they managed to cram all that incredible music and sound – plus a game and great graphics – on to a single 3.5in disc!

I don't know how its done, but I do know how all the sounds and music sequences were produced – using many of the very same digitising, sample editing and sequencing packages we've discussed here.

Can you *really* make music on an Amiga? Does Spock have pointy ears!

SAMPLE CHOPIN LISZT

Audio Digitiser: £27.99 from Trilogic on 0274 691115.
Pro Sampler Studio: £69.95 from Datel on 0782 744707.
Future Sound 500: £79.95 from Applied Visions on 0923 818078.
Pro-Sound Designer: £79.95 from Power Computing on 0234 273248.
AMAS: £99.95 from Microdeal on 0726 68020.
Real-Time Sound Processor: £115 from HB Marketing on 0895 444433.

SYNTH ON A DISC

SYNTHIA, by the Other Guys Software, offers another approach to creating sounds on the Amiga. It uses algorithms to drive the Amiga's audio channels in order to emulate various modes of synthesis such as subtractive, additive and FM.

It's sort of a synthesiser on a 3.5in disc and is a great means of generating unusual timbres and textures as an alternative to ordinary sampling.

At the moment The Other Guys don't have a UK distributor, but you can contact them on 0101 801 753 7620, or write to: The Other Guys, P.O.Box H, Logan, UT 84321.

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Don't miss these back issues

April 1989 issue

Big Screen Hero – we can't take our eyes off the monitor with a 1008 x 1008 resolution. Triangle TV, the company which married the Amiga to commercial video, tells its tale. Gen up on genlocks – we look at the four main contenders. Superplan, the businessman's ménage-à-trois flexes its muscles. Zoetrope, animation at a price. Amigas by accident – we meet the Burocare think-tank.

May 1989 issue

Gold Disk's MovieSetter – cartoon capers on-screen. GFA Basic roasted, The Amiga Show in the Big Apple. Prettier icons with Icon Paint. Opus-1 plays specialist music. Learn how to use functions from Basic and the Move command from machine code. Sam Littlewood looks at the different forms of ray tracing and rendering. TR Sketch dragged to the trashcan. WordPerfect Library fares a little better. Plus a mega collection of games including the earth-shattering Populous and the truly cosmic Cosmic Pirate.

June 1989 issue

Deluxe Paint III – the number one art program gets better with animation. Scorpion heads up the games. The Aprodraw graphics tablet, using lines from Basic. Sculpt-Animate 4D reviewed – a bargain at £400? The best of the Public Domain and the CMI processor accelerator run through its paces at 14MHz.

July 1989 issue

Exclusive review of Commodore A590. X-Cad designer, the Amiga program which leaves AutoCad in the Shade. Pagestream – quality DTP on a low budget. Essential tips on how to make more room on your Workbench disc. Musical scores ten out of ten with Dr. T's Copyist Professional. Teaching is more important than Education, a look at Amiga's in schools. Plus a packed games review section.

August 1989 issue

First sensational cover disc. Trained Assassin, Raider and more. Vortex hard drive review, 68020 runs slow, Powerdrome, 3D Pool, R-type and Balance of Power all get the joystick treatment. The model universe gives you a Basic Solar system. Cure the hard disc blues – how to use prep and format to optimise disc performance.

September 1989 issue

Bumper business disc. Day by day, Protext and Home accounts lead the way. How to program Copperlists from assembler and meus from Basic. SuperPic – the best frame grabber around. Power Computing's Turbo 3 is the best buy per megabyte but with 100 meg on line it's an expensive proposition. Epson's LQ-660 top notch 24 pin colour. Programming ethics contested Argonaut Vs Ariadne. Devices: explained under the workbench. Turn your Amiga into an Apple Mac with A-Max. Dean Friedman on music plus some amazing games reviews.

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On a wing and a program

Beat that game

Max the Hacks takes on everything from Eliminator to Interceptor

FROM time to time I get really hooked on a game. My favourite plaything of the moment is Leonardo, from Starbyte. The same fate has befallen Tony Coxon from Nottingham who has written in with the three passwords to get on to later levels. Shut your eyes if you don't want to know what they are.

The codes are Emmentaler, Alphorn and Matterhorn.

It's OK, you can open your eyes again now.

Tony has been just as busy with Grandslam's Thunderbirds. For levels 2, 3 and 4 the codes are Recovery, Aloysius and Anderson. Well that really was a fab one.

Stage	Code
2	Ameoba
3	Bloop
4	Cheeki
5	Doinok
6	Enigma
7	Flitme
8	GeeGee
9	Handle
10	Icicle
11	Jammin
12	Kikong
13	Lapdog
14	Mikardo

Thomas McDerrmott's password for Eliminator

Calling people "mister" is far too formal Mr M Stringer from Bedfordshire, but your tips are so great I'll let you off. First up the cheat mode for Carrier Command. Type "THE BEST IS YET TO BE" complete with spaces at any time in the game and a message appears which says "CHEAT MODE ACTIVE". Once this happens you can press the + key on the numeric keypad to make Mantas and Walruses immune from enemy missiles. They do not make you immune from crashing.

If you get bored in your immune state you can seek a little amusement by clicking on the disc icon to quit.



I fought the law and the law won

Then click on the flag icon to return to the spinning carrier animation. Now for a bit of magic. Let your fingers wander over to the + and – keys. These will cycle through all the shapes in the game.

Real rulers of all things aquatic want to master the missions in EA's Interceptor.

But if you can't be bothered to work

through all the missions there is a quick way to mission six and the shadow sub.

Here you have to destroy all the planes. Forget about the sub, although you can shoot it and watch the smoke pour out or land on it to re-arm.

The quick way needs some Basic jiggery-pokery. You will need an Interceptor log disc. Start with Workbench. Make a copy of your Extras disc and put the original somewhere safe. You are going to need some space on your new Extras disc, so click on the icon to open the disc and then click on the BasicDemos drawer.

Make sure this is the only selected icon, and hold down the right mouse button. Move the pointer to the top left hand corner and the Workbench menu.

Highlight the discard option and let go of the mouse button. When the warning appears click on OK – you are using a copy aren't you? The BasicDemos drawer will be deleted. You now have more than enough room for your Interceptor improver.

Load AmigaBasic from your *copy of Extras* disc then type the program into the list window:

```
REM ALL THE MISSIONS FOR INTERCEPTOR
REM BY M. STRINGER (C) AMIGA COMPUTING
PRINT:PRINT "INSERT YOUR LOG DISK IN
DRIVE 0"
PRINT "AND PRESS A KEY..."
WHILE A$=""
  A$=INKEY$
WEND PRINT:PRINT "PLEASE WAIT.."
OPEN "R",#,"DF0:CONFIG",1
FIELD #1,1 AS B$
LSET B$=CHR$(1)
PUT #1,2
FOR N=22 TO 27
PUT #1,N
CLOSE #1
PRINT "FINISHED"
```

Save the program to your *copy of Extras* disc then run the program. You will now need to put the Interceptor log disc – not the original game disc – into the drive. When the drive has finished whirring and Basic says "Finished" and OK reset the machine and pop your Interceptor disc into the drive. Your new log disc will now open up all the missions to you. Select 6 from the menu to go sub-busting

Before I sign off here is a tip Adam Chapman from Bletchley wrote in with, a cheat for Helter Skelter. First player one must get an extra life before player two. Then both players must lose all their lives. Then player two comes back with 99 lives, and when he dies once player two will have 99 lives.

Thanks Adam. Remember to send me your tips.

And that's it for this month. Just time to say that if you have some tips you can win yourself one of the mysterious jiffy bags which litter the *Amiga Computing* office floor.

Each bag contains a superb game and a Konix speedking joystick. Send your tips, on disc if possible, to Max the Hacks, *Amiga Computing*, North House 78-84 Ongar Road, Brentwood, Essex, CM15 9GB.

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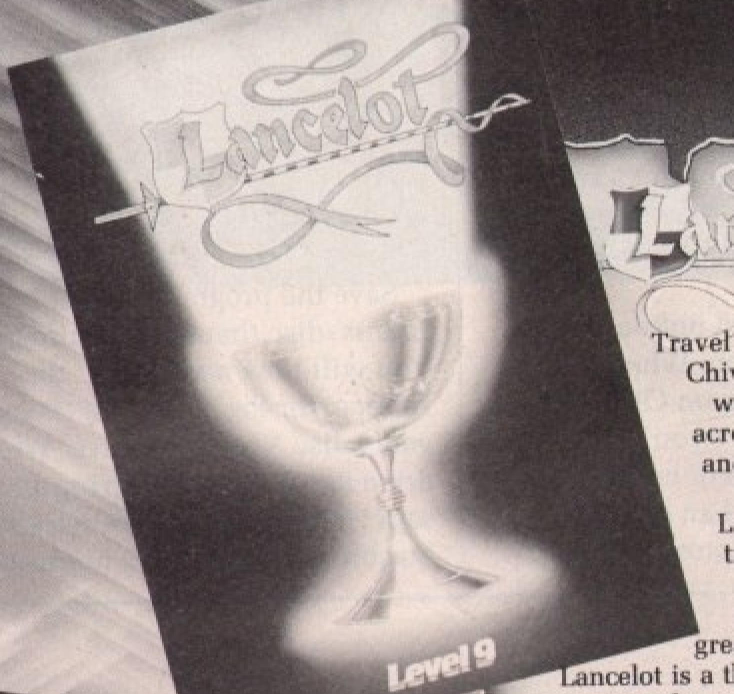


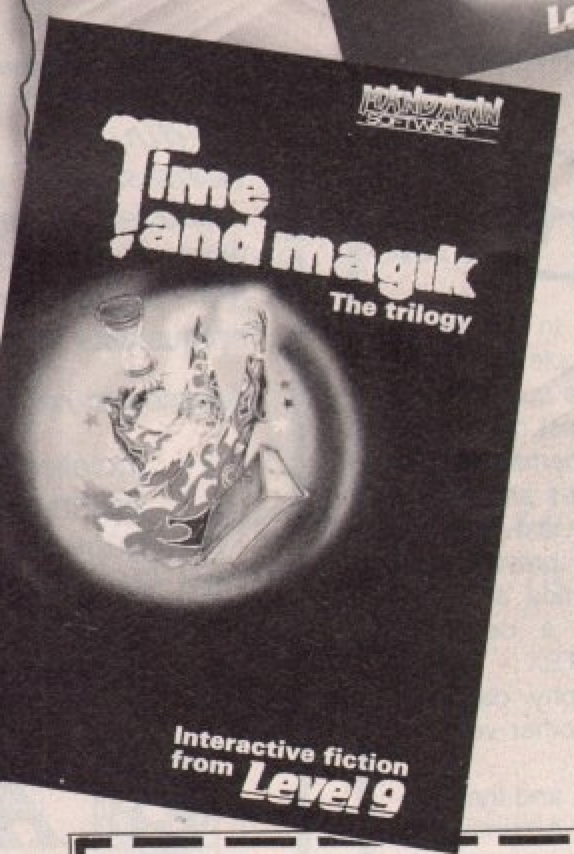
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AMIGA Letters

Saved from an island

I READ with interest the review of Archipelagos in the July issue of your magazine. I was, however, a little surprised to see that the game contained no save game option, as I distinctly remembered having put one in while I was writing it.

A quick run through the game reassured me that I hadn't gone completely bonkers – the option is indeed there. Although to be more accurate it's not strictly an option. Whenever an archipelago is successfully completed the fact is saved to the game disc whether you ask for it or not. Henceforth on entering the game the player can choose to "Select another archipelago" up to his currently saved position.

I know that Amiga gamesters are an enthusiastic bunch but to expect them to solve 9999 levels of a game at one sitting is, to say the least, optimistic. On my reckoning this task would take at least 69 day and nights of solid Archipelagoing, and would probably result in a nervous breakdown long before that time.

I realise that this information is not very well documented in the manual and would therefore be grateful if you could pass it on to your readers.

Paul Carruthers,
Astral Software.

Mutating Viruses

AFTER reading with interest the answer to "what the doctor ordered" in the letters pages of your May 1989 issue about computer viruses, disc formatting, general care of discs and a suggestion on how to make a Blue Peter ashtray out of badly-corrupted discs (good idea!), I bought a copy of VirusX. I have owned an Amiga 500 for six months and only recently witnessed a computer virus at work.

Is it true that even virus antibody discs and virus killers can infect programs, mutating a virus that has already infected the disc originally and changing it into something ten times more deadly?

Stephen Crane,
Evesham, Worcestershire.

Yes some antibody programs and virus killers can damage discs. VirusX is safe – although you should watch out for version 3.3, which is an impostor.

Digital ears

I AM thinking about buying a sound sampler for my 1 meg A500. It seems that there are many to choose from. I would prefer a good variety of input sockets – 3.5mm jack and phono sockets. I am also interested in the prospect of Midi, so AMAS would fit the bill here, but is the actual sampler any good, as Midi is only a secondary consideration?

Can the FutureSound 500 hardware be bought separately from the software at a cheaper price than £80? I have read that a combination of Pro-Sound Designer software and FutureSound hardware would be the ideal combination. Would it total around £80?

I would also like the idea of stereo sampling, but is it worth paying the extra, and which samplers do this? Please help me as I have been considering buying a sampler for a while now and I cannot decide.

Kris Roger,
Ashford, Kent.

When we reviewed a whole bunch of samplers in our July 1988 issue the Eidersoft Pro-Sound came out on top. Since then Datel has launched its sampler and Applied Visions has updated FutureSound, which we agree now seems to have the best hardware in terms of value for money.

The Sophus 5 probably still gives the best quality, but the software is difficult to use and is expensive. You get much better samples from the more expensive samplers, and stereo is worth paying for. The Adept unit from HB Marketing is unique in offering real-time features.

We would agree that the FutureSound 500 and ProSound Gold combination is an excellent one. By shopping around you should get the price down, but it is unlikely to come to less than £100, particularly since the price of FutureSound 500 has now gone up to £89.95 and it is not available without the software. For more details see Dean Friedman's article in this issue.

Mumbo Jumbo

NEXT week I will be parting with my Commodore 64 to trade it in part exchange for an Amiga 500. I got the idea from a friend who did the same thing a while ago and am very keen on the idea.

It is obviously a big jump and there are several things I would like to know. Firstly, what exactly is a meg? It sounds very technical, and while I am quite computer-minded, this is a new word to my vocabulary. I have picked up a rough idea of what it is but am still not completely satisfied.

Another thing that nobody seems to know much about is whether or not it is possible to fit a hard drive to the A500. Is it possible? If so, how much would it cost?

People also tell me that the first thing I should get when I've finished

►

AMIGA Letters

paying for the Amiga is an external drive. Is this necessary or advantageous, and if so, in what ways?

I had, and am keeping, a printer for my Commodore 64. It is the Seikosha SP-180VC. I know this is not directly compatible with the Amiga but it is a good machine and I am very happy with it. Is there any way in which I could make it compatible with the Amiga?

Julian Hirst,
Sevenoaks, Kent.

Remember when you bought your 64 it had an "elephantine 64k of memory"? Well a meg is 1024k, or 16 elephants. A standard Amiga comes with eight elephants, sorry, 512k, also known as half a meg, but the machine is easy to expand up to one meg.

Digging through the ads in the August issue of Amiga Computing *turns up an "Amiga 64 Emulator Lead" in the Trilogic advertisement. Give them a ring on 0274 691115.*

Curse of YASTP

UNTIL recently I used a CPC6128 for WP, database, spreadsheet and a lot of games. My main source of frustration was bugged software. This would almost always be a game, and would almost always have been written by Ocean. Typical examples were Wizball (unplayable) and Arkanoid.

I wrote to Ocean several times without reply. In desperation I wrote to the two main Amstrad CPC magazines (twice each), stating that I realised that they depended on people like Ocean for much of their revenue, but pointing out politely that they were responsible for the advertisements in their magazine. I asked that they speak to Ocean on my behalf. No answer.

I now use an Amiga. One of the first games I bought was Wizball (despite my distrust of Ocean it has to be said that their games are good). The first time I cleared a couple of levels, the computer locked up, then displayed a *Software failure* message.

Do I have any comeback against these people? Is there anything I can do to get them to take an interest in their customers? Do your other readers complain? I would be grateful if you could advise me.

I doubt that there is a physical fault on my particular disc – it looks much more like the sort of programming error which I used to make. Anything you can do to help would be very much appreciated – even if you just say "Hello Roger" just to confirm that I exist.

Good magazine so far – there are many more rubbishy publications in the world of Amigas than was the case with the Amstrad.

Roger Fenton,
Clifton, Bristol.

Hello Roger. We remember Arkanoid being bug free and great on the CPC, of course nowhere near the standard of the Amiga version, but then there you are.

Amiga software has always suffered from the Yet Another ST Port (YASTP) syndrome, but things are looking up with more programs being written to take full advantage of the hardware. Ocean has just proved the point with a proper version of New Zealand Story.

This healthy attitude to development leads to a better understanding of the machine and fewer bugs.

Protext praise

THANK you for the help you gave me at the Commodore Show and the advice to get the new version of Protext from the Arnor stand. I have tried out the new version, and I am very pleased with it.

As I was told that Protext has a Star LC24-10 printer driver I bought this printer at the show at a discount. I tried it all out, and it works fine. For line drawing I did not have to go into IBM mode as suggested in the manual. I like the hot key (shift-control-E) for the end of sentence deletion, which makes editing a lot easier.

The manual is far superior to the early edition, my only criticism is that of the PL stored command – it is not until the end of the manual that it mentions the allowance that has to be made for the paper fed into the printer.

You see I was setting the PL for the length of paper as stated in the beginning of the manual, 12in. I set my paper to 70 lines but I have now discovered that I have to make allowance for the paper that is fed in the printer, this setting is PL65. It seems to work all right, but is still confusing.

I have yet to try out many of the projects that Protext has to offer, once I have mastered it, I will be able to transfer some of my files from the C64 Superscript that I have been using for many years.

J A Bailey,
Upminster, Essex.

Megabyte blues

IMAGINE my excitement when I bought Timescanner. Imagine my disappointment on getting home and finding out it did not load. I returned the disc to Activision.

During a telephone conversation with Activision my wife was told that Timescanner was a 1 meg game and will not load on a 512k machine. I hunted through all my recent magazines but found no report of this at all. Following another telephone conversation I was told: "We only found out last Thursday".

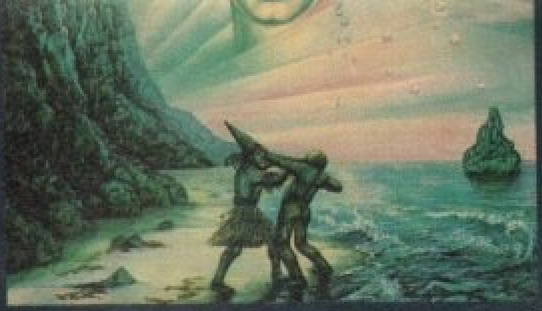
How can any one who produces games not know whether or not they are making a half or one meg game after it's gone to the shops? I find this is an act of false advertising; people should be warned before they buy certain games.

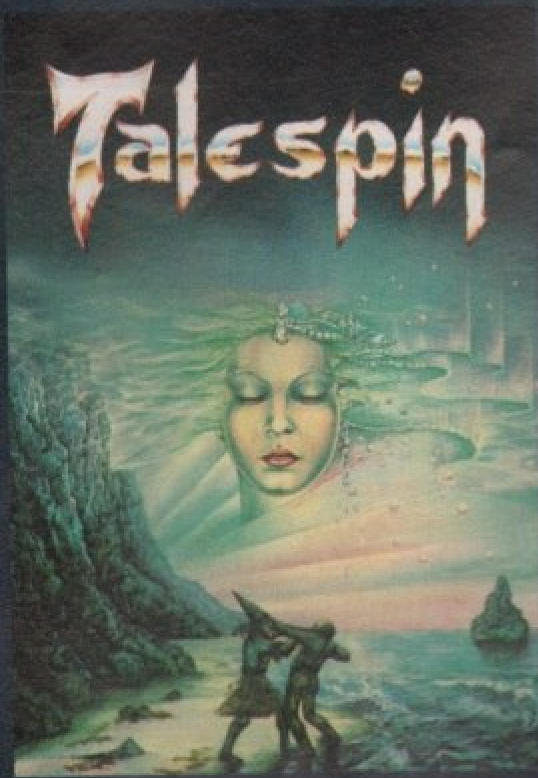
S. Brown,
New Addington, Surrey.

Some magazines don't check things properly, some even write "reviews" of games long before the games are ready to go on sale, just so that they can shout "look, we were first".

Yes, it is great to have exclusives but there is no point in rushing to the extent that you miss things or make mistakes. Of course the Amiga Computing *review team picked up the Timescanner problem, which is probably due to the programmers not understanding the Amiga properly and producing a shoddy ST port.*

A pinball game isn't so complicated that it needs more than 512k. Stick to a magazine you can trust. We will warn you.







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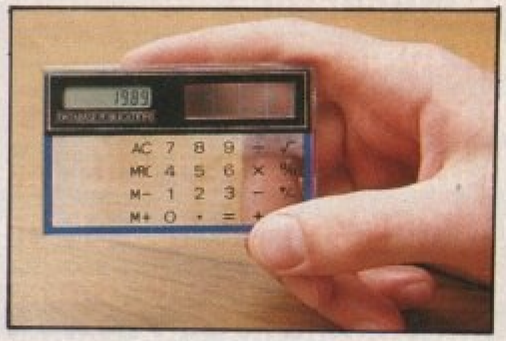
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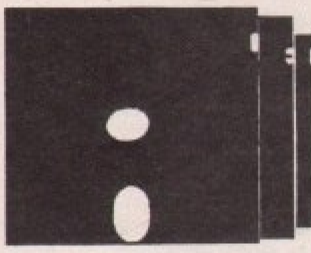
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